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An Address.[1]

By P. W. VERCO,

President of the South Australian Branch of the British Medical Association.

THE obligation to give a presidential address is a small price to pay for the honour of being elected to the presidency of this Branch. Nevertheless, I suspect I have not been the only President to suffer a period of considerable anguish while deciding what to say and how to say it.

I would like tonight to outline to you some thoughts on the changing medical scene of the last twenty years. Most of you will realize that this covers the span of my own direct acquaintance with medicine, as a student and graduate, and, therefore, the only period from which it is permissible for me to talk from personal experience.

The middle and late 1930's saw the country slowly emerging from the disastrous depression years, and the medical profession, which had carried its burden of the hardships of those unhappy years, was just beginning to share in the better times when war was declared. There is no need here to remind most of you of the effect of those war years on medical life in this country.

In the few years before the second World War, the number of students commencing medicine increased sharply. This is reflected in the steady growth of membership of this Branch from 400 in 1940 to its present total of 924 members. As the majority graduate between the ages of 23 and 25 years, it means that more than 55% of our members today are under the age of 40 years.

This is a direct reflection of the steady increase in prosperity, industry and population since the depression. The loss of so many young men during the recent war was partially offset by an increase in the personnel in industry necessary to support the fighting forces, and a drift of the population since the war from agricultural pursuits to the cities. World shortages of primary products, such as wool and grain, coupled with an extraordinary run of good seasons have carried Australia on the crest of the wave. The crest has perhaps shown a tendency to curl and spill, but expansion of secondary industry and a liberal immigration programme have helped to steady its course.

The consequence of all this is that we enjoy an extremely high standard of living in this country, and with this has risen the level of education, aided considerably by the Press and radio. Prosperity has enhanced the sense of national pride engendered by the part played by our armed forces in various theatres of both world wars and in Korea.

Certain disadvantages have accrued. More fortunate than our British and New Zealand colleagues, we have survived an attempt at nationalization of the medical profession in the immediate post-war years. Statisticians have pointed

[1] Read at the annual meeting of the South Australian Branch of the British Medical Association on June 25, 1958.

out that today ours is on the average the most lucrative of the professions in a time of steadily mounting costs, and when "free medical attention" is a glorious phrase as election bait; although closer scrutiny, as always, reveals the higher cost of governmental as opposed to private enterprise. In general, too, it is probably true to say that the financial rewards of medical practice are no greater than the responsibility accepted, both personal and to the community. One of our responsibilities now, according to the sound advice of our Federal Council, as a counter to the renewed threat of nationalization of our profession, should be to explain to our patients the virtues of medical insurance schemes, despite their minor drawbacks, and to do our best to ensure that a high percentage of the population are so covered, and to foster a medical service worthy of freedom-loving Australians. Also, the doctor, both specialist and general practitioner, must "supply the goods to the consumer" in the shape of first-quality service given pleasantly and efficiently.

On May 18 of this year, the executive officers of our Federal Council conferred with the National Health Steering Committee of the Australian Labour Party. It was understood by our representatives that this Committee of the A.L.P. had not reached any firm decisions on the subject of a national health scheme, and were not in a position to give information as to their intentions.

Dr. Colville, the President of the Federal Council, in addressing the Committee said: "Gentlemen, I feel it is my duty to warn you that, if you attempt to introduce a capitation system of medical service into this country, it will be resisted in every possible way by a united medical profession, and we will fight to the last ditch to prevent the prostitution of medical services to the community of which we feel justly proud." He also made the point that the British Medical Association is an entirely non-political body, and owes no allegiance to any political party.

It is sad to have to say that the years have seen a steady decline in the esteem which used to surround the doctor in Australia. There are many reasons for this, not the least of which are the higher level of education and the impact of radio and printed matter on the population, with their inevitable effect on the patient's more critical appraisal of his doctor's pretensions. Colleagues of my own age group have discussed this with me, and much thought has been given to it in our own Council meetings.

Perhaps the threat of nationalization is fortunate in that it will force us to close our ranks, to examine our consciences and to reorganize our way of life to fit a very changed world. While it is the prerogative of the University through the Faculty of Medicine to lay down what shall be taught to the aspiring undergraduate, it is the duty of the British Medical Association to preserve standards of conduct and practice, and to act as the negotiating body for the profession with the community at large.

Most of us would gladly contribute to a publicity campaign to put the case against a national health scheme to the public through the Press and radio, that they should realize its shortcomings and expense. But there is need also for a measure of self-discipline within the profession: in the jargon of the salesman, we must introduce our product to the customer in its best light, and see that the quality of it is maintained. While major complaints of an ethical nature against doctors are uncommon, minor complaints from patients do occur. The great part of these are dealt with tactfully and successfully by the secretary, and are usually the product of a rather tiresome patient and an overworked and exasperated doctor. The frequent allegations are failure to attend a call, overcharging or failing to discuss the nature of his account with the patient, and lack of consideration for the patient's suffering, leading to a change of medical attendant and a dispute regarding the bill from the first practitioner.

Irregularities in certificates for absence from work have led to the recent deregistration of one practitioner in this State. This circumstance will arise less frequently now that the Employers' Federation have agreed to accept a statutory declaration from the patient who has been absent from work but has not found it necessary to consult a doctor during the time of his illness.

There are many ways in which one can prevent an unnecessary scene by the exhibition of a little patience and consideration, rather than impulsively indulging in a scathing retort. The imperious attitude does not become the doctor of today, and as individual members we must strive for the goodwill of the public. We must, for instance, accept the blame that they are not acquainted with the changed role of the one-time charity hospitals, which today are specialized institutions where many of the patients now could well afford to pay private fees, although the honorary medical officers still do work for no direct financial return. The tradition of free medical attention for the needy is still a basic principle for us all, but it has been readily abused, as much by the hospital administrations as by the public.

In an effort to improve relations with the public, your Council intends to establish an emergency surgical service. This will work in the area not covered by the Flying Doctor Service, and will provide a skilled team on request to a practitioner who is suddenly overwhelmed by the arrival of a number of casualties at his hospital. He may then ring up the headquarters of this service, at any hour of the day or night, the situation will be assessed, and a team will come to him by car or by air, bringing the necessary equipment and personnel.

Quite apart from the benefit this should bring to the casualty, it should lighten the load on the country practitioner, and contact with the team should keep him informed of the latest techniques in resuscitation, management of trauma and anæsthesia. The hospital staff, too, will benefit directly.

It has been said that no one but an idealist would study medicine for six or more years, then be at the beck and call of the public for long hours, work cheerfully, and at times for no monetary reward, and accept the responsibilities, disappointments and frustrations that accompany our way of life. Undoubtedly, we all start with those ideals: do we retain them and honour them?

I am sure you will accept the basic concept that the medical profession has the moral duty to advise on medical services to the community, including such matters as the standards of medical service, public health needs, the number and type of hospital beds and the form of medical practice. A house divided against itself cannot stand, and it has been agreed by the Colleges that, at least in matters political, the Federal Council should act as spokesman for the profession with the Commonwealth Government, lest differing views should weaken the argument. It is imperative, therefore, that State Branches should act as the spokesmen for the profession in dealing with State departments. It has been suggested by the staff of the Queen Victoria Maternity Hospital that this principle should be adhered to. It is suggested that a special committee of the Branch should be set up to consider the hospitals position, present and future, in this State, so that Council may advise the Government accordingly. This, although admittedly no easy task, is a burden we should undertake. It will be necessary to classify hospital accommodation (country, metropolitan, private or public) to enumerate its deficiencies and advantages, and to reconcile this with the needs of an expanding community and increasingly complex medical care. This Branch put forward a plan for a ring of metropolitan hospitals of various types in 1945; this has been acted upon to some extent by the erection of new hospitals at Woodville and Salisbury, and liberal subsidies to other hospitals, both private and public, by the Government. The Government has frequently dealt harshly with our recommendations, but our recommendations must be substantiated by critical appraisal, and not weakened by vacillations or varying opinions by biased parties. At this time, we are short of private hospital beds, and many of our public hospitals are overcrowded and working under conditions that are far inferior to those enjoyed by other communities.

It may be argued that the Press and radio have assisted materially to lower the stature of the doctor in the eyes of the community. No longer is the marvel of Mrs. Smith's operation discussed with bated breath after church, but the latest discoveries in some international sphere are to

be read in the paper, heard in a dramatized version over the air, or studied in some detail in a digest, often before we receive our overseas scientific journals. No longer is our own MEDICAL JOURNAL OF AUSTRALIA sacrosanct—it is registered as a newspaper for advantages in its transmission by post, and as such is available to the Press, to be rehashed at their whim. The power of the Press was brought home to us all last year—we have all had experience of the sensational impact of the influenza epidemic, the "golden death" and the effects of irradiation on humans. We have all seen how profoundly the public has been influenced, unnecessarily alarmed, and shaken in their confidence in their medical attendants. Directly as a result of a conference between certain members of the Adelaide Childrens' Hospital staff and Press representatives, the hopeless export of children sick with leukæmia to Europe is no longer blazoned. Perhaps we have also been fortunate to be spared public discussion on "Should the doctor tell?", "Euthanasia" and other emotionally charged topics.

A section of the Press is interested only in news—a fresh item, particularly if a sensational headline can claim attention. Frequently the item is worth while only for one issue; any follow-up paragraph or reply may be relegated to the rear of the paper, and pass almost unnoticed. The first impact under the flaring headline is the one which makes the impression on the mind of the public, and for them becomes the true story. It is for this reason that the profession must reconsider its attitude to publicity, an increasing number of us believe, for it would assist the cause of truth to employ someone skilled in public relations (perhaps on a part-time basis) to put our point of view in a form easily accessible to the public. Copy so prepared would be welcomed by the Press. Many of us remember the excellent results from the radio talks and newspaper articles of our publicity campaign during the previous threat of nationalization. After all, if we accept that in many ways medicine can advance only with the understanding cooperation of an informed public, it behoves us as an organization to abandon traditional medical aloofness and to ensure that the public is, indeed, kept properly informed.

In all humility I present these observations to you for your consideration.

THE CLINICAL FEATURES, PATHOGENESIS AND THERAPY OF SYSTEMIC LUPUS ERYTHEMATOSUS.[1]

By IAN R. MACKAY,[2]

From the Clinical Research Unit of the Royal Melbourne Hospital and the Walter and Eliza Hall Institute of Medical Research, Melbourne.

THE term "lupus" is a very ancient one. It appears in the "Cirurgie" of Lanfrank (1396) amongst "apostemas" (swellings of the limb) and is used synonymously with "erysipelas". Barrough (1590) identified "lupus" with a destructive ulceration, which was "hungry like unto a woolfe". There were many early nineteenth century titles for lupus erythematosus, including the term "lupus erythematodes" applied by Cazenave in 1852, who mistakenly related the condition to lupus vulgaris; Kaposi in 1872 and Osler in 1895 described visceral lesions, establishing the concept of systemic lupus erythematosus (historical references cited by Hill, 1957). Klemperer *et alii* (1942) placed the major incidence of the disease on the collagen elements of connective tissues. The discovery of the L.E. cell (Hargraves *et alii*, 1948), suggesting cell nuclei as a site of damage, subsequently led to a fresh interest in immunological aspects of the disease. In this paper, I wish to survey the clinical features of systemic lupus erythematosus (S.L.E.), and to present some evidence we have obtained pertaining to the auto-immune theory of pathogenesis.

[1] This paper was presented to the Australasian Medical Congress (British Medical Association) at Hobart, Tasmania, in March, 1958.

[2] Working with the aid of a grant from the National Health and Medical Research Council of Australia.

Clinical Aspects.

Three aspects of S.L.E. are receiving current emphasis: (i) The increasing awareness that the disease is relatively common—more common, for example, in one hospital than pernicious anæmia (Dubois, 1956). (ii) Although there may be acute exacerbations, the disease may exist in a mild form and be of great chronicity. (iii) There may be a wide variety of clinical manifestations.

Although it can no longer be argued that a positive result to an L.E. cell test is a conclusive diagnostic criterion for classical lupus erythematosus, we have relied mainly upon this test (method of Magath and Winkle, 1952; Cowling and Thomas, 1957) to delineate the group of patients in whom the diagnosis of S.L.E. could reasonably be considered. Sixty-six such cases have been reviewed from among patients admitted to the Royal Melbourne Hospital over a five-year period, and these fall into four separate categories: (*a*) classical systemic lupus erythematosus, 35 cases; (*b*) rheumatoid arthritis with a positive result to the L.E. cell test, seven cases; (*c*) chronic hepatitis with a positive result to the L.E. cell test, 14 cases; (*d*) atypical systemic lupus erythematosus, 10 cases.

Classical Systemic Lupus Erythematosus

In 35 cases of classical S.L.E., the clinical features closely paralleled those reported in other large series (Table I). Diagnostic criteria for S.L.E. may be classified as major and minor. Major clinical manifestations are facial rash, affected joints (especially of hands), nephritis, serositis, pneumonitis and endocarditis. Minor clinical manifestations are enlarged lymph nodes, enlarged liver and spleen, Raynaud's disease, abdominal pains and neuropsychiatric changes. Other criteria are a high erythrocyte sedimentation rate, leucopenia and a positive result to the L.E. cell test.

TABLE I.

Comparison of Present Cases of Classical Lupus Erythematosus with Other Series. (Percentage Incidence of Lesions.)

Manifestation.	Present Series, 35 Cases.[1]	Harvey *et alii* (1955), 105 Cases.	Hill (1957), 40 Cases.	Bunim and Black (1957), 452 Collected Cases.
Female sex	90	78	78	—
Febrile episodes	87	86	—	93
Arthralgia	81	90	90	88
Skin lesion	75	85	48	62
Renal lesion	72	65	76	49
Lymphadenopathy	42	34	28	48
Hepatomegaly	39	32	32	36
Splenomegaly	36	15	28	21
Heart lesion	30	52	56	—
Pleurisy	30	56	38	48
Pulmonary infiltrates	30	22	—	25
Gastro-intestinal	27	—	8	31
Psychiatric change	24	19	26	23
Raynaud's disease	21	10	14	16
Pericarditis	15	45	14	36
L.E. cell test	100	82	—	82
Positive Wassermann reaction	9	15	—	23

[1] Anæmia 78%, leucopenia 24%, thrombocytopenia 21% in present cases.

Evidence was sought for an inherited predisposition to S.L.E., but the results were inconclusive. A history in near relatives of "allergy", asthma and rheumatism was obtained in seven (20%) of the 35 patients. Moreover, it is suspected that certain constitutional types develop S.L.E.—hence the term "lupus diathesis" (Haserick, 1955). As many as 10 of the 35 patients had an early history of hypersensitivity illnesses, such as asthma, joint pains, hives and eczema.

It is also thought that S.L.E. may be initiated by "trigger mechanisms", such as injury, infection, sunburn or sensitizing drugs. Reasonable evidence for this was obtained in 10 cases, the triggering factors being drugs in two cases (gold and sulphonamide); and, in one case each, septic abortion, septic ulcer, cholecystectomy, severe

accident and infectious hepatitis (classical); in three cases the onset of the disease was related to pregnancy.

No formal psychiatric evaluations were attempted, but the incidence of emotional disturbance, often associated with considerable domestic stress, was high (nine cases); common personality factors included withdrawal, shyness, conscientiousness and failure to give expression to feelings of hostility and resentment. This of some interest in relation to the high female sex incidence of S.L.E.

The occurrence of thyroid disorder (goitre, thyrotoxicosis, myxœdema) in the 35 cases was noteworthy; one patient died in thyrotoxic crisis, two had goitre with myxœdema and four had non-toxic goitres. A female patient in the "atypical" group also had severe thyrotoxicosis.

Rheumatoid Arthritis with a Positive Result to the L.E. Cell Test.

The incidence of a positive result to an L.E. cell test in rheumatoid arthritis, in reports cited by Friedman *et alii* (1957), varies from 0% to 25% and was 27% of 91 cases in Friedman's study; an incidence as high as 64% was reported by Parr *et alii* (1957) from Sydney. The most noteworthy features of our seven cases were severe intractable arthritis and the finding of rheumatic nodules in four out of the seven cases. One case had, in addition, severe leg ulceration, as described by Allison and Bettley (1957). The association of rheumatoid arthritis with a positive result to the L.E. cell test is of uncertain significance, but, on clinical grounds, the condition is true rheumatoid arthritis and not a variant of S.L.E.

Hepatitis and a Positive Result to the L.E. Cell Test.

The finding of L.E. cells in two cases of chronic hepatitis by Joske and King (1955) led to an intensive search for similar cases. Five additional cases were reported and the syndrome was named "lupoid hepatitis" by Mackay *et alii* (1956); as defined, the initial condition is a typical chronic active hepatitis or cirrhosis, in the course of which a positive result to the L.E. cell test is obtained. Fourteen such cases have now been observed. In all the hepatitis initiated the illness and dominated the clinical course throughout, but nine patients also had some manifestations of lupus erythematosus, including arthritis, a facial rash, pleurisy, nephritis and hæmocytopenia.

Thus, lupoid hepatitis occupies an uncertain place between chronic active hepatitis and S.L.E. The occurrence of parenchymal cell necrosis and regeneration in lupoid hepatitis leads me to question whether "collagen disease" is an anatomically valid term for the liver lesion. Thus, the nosological problems raised by this entity are considerable, and may only be solved by a final understanding of the basic pathogenesis of both conditions.

The incidence of liver involvement—hepatic lupus—in classical S.L.E. is being assessed by the study of necropsy and biopsy material from 18 cases. In two cases there was a well-developed multilobular cirrhosis. Minor histological abnormalities, which could be ascribed to neither nutritional factors nor terminal changes, and could not be dismissed as "non-specific", were present in 10 cases and included infiltrations of plasma cells, lymphocytes in the portal tracts (10 cases) and mild fibrosis (five cases).

Atypical Cases.

Ten patients, in eight of whom the result of the L.E. cell test was positive, presented certain features of the S.L.E. syndrome, but the total clinical picture was atypical (Table II). Four were males and four were over 50 years of age.

In four patients the chief manifestation was peripheral vascular disease (Keat and Shore, 1958). Two patients had peripheral gangrene, and in one the histological change was eosinophilic arteritis; the third patient had scleroderma and the fourth had a long history of unexplained abdominal pain and Raynaud's phenomenon. The complaint of two patients was diagnosed as low grade polyarteritis nodosa on the result of muscle biopsy, two had severe drug reactions, one presented with mitral stenosis and pleurisy, and one with recurrent pericarditis.

It is not easy to state whether the L.E. cell test in these cases gave a "false positive" result, or whether such were, in fact, atypical variants of systemic lupus.

The Pathogenesis of Lupus Erythematosus.

Much evidence has accumulated favouring disturbed immunological responsiveness as a major ætiological factor in S.L.E.

1. The serum γ globulin component, which contains antibodies, is frequently elevated in S.L.E.

2. The L.E. factor of serum, responsible for L.E. cell formation, is a γ globulin which is adsorbed onto leucocyte nuclei, has an affinity for nuclear nucleoprotein (Holman and Kunkel, 1957) and behaves similarly to an experimentally produced antinuclear antibody (Miescher, 1957). If lesions in S.L.E. are due to such mechanisms, the characteristic collagen changes and fibrinoid necrosis may well be secondary to damage to connective tissue nuclei.

3. A protein, presumably γ globulin, is demonstrable in the thickened glomerular basement membrane in lupus nephritis. An antibody to human γ globulin can be prepared by γ globulin injection into the rabbit. This rabbit antibody, coupled with fluorescein as a marker, is made to react with unfixed sections of kidney biopsy specimens from patients with lupus nephritis. A brilliant fluorescence, when viewed through violet light, indicates that human γ globulin is incorporated within glomerular structures (Taft *et alii*, 1958). In our experience, a strongly positive reaction has been almost specific for lupus nephritis, although other authors (Mellors and Ortega, 1956; Vazquez and Dixon, 1957) have demonstrated globulin binding in other types of nephritis as well. These experiments suggest the interaction of human antibody globulin with an, as yet,

Table II.

Features of 10 "Atypical" Cases of S.L.E.

Major Clinical Manifestation.	Number of Cases.	Positive Result of L.E. Cell Test.	AICF Test.		Remarks.
			Number tested.	Number positive.	
Peripheral vascular disease ..	4	4	0	0	Cases of: (i) gangrene of fingers and hand; (ii) eosinophilic arteritis with gangrene; (iii) scleroderma; (iv) abdominal pain and Raynaud's disease.
Polyarteritis nodosa	2	2	1	0	Arthralgia and myalgia—polyarteritis on muscle biopsy.
Severe drug reaction					
(a) Phenylbutazone	1	1	1	0	Antecedent rheumatoid arthritis.
(b) Thiouracil	1	0	1	1	Clinically S.L.E.
Pericarditis	1	0	1	1 (+++)	
Endocarditis	1	1	0	0	Mitral stenosis; pneumonia and pleurisy.

unknown glomerular antigen; however, proof is still lacking that tissue damage occurs as a result of this interaction.

4. Circulating antibodies to human tissue antigens are demonstrable in S.L.E., by means of the auto-immune complement fixation (AICF) test (Gajdusek, 1958) and by hæmagglutination of tanned cells (Hellweg *et alii*, 1957), in a considerably higher proportion of cases than in any other disease category (Mackay and Larkin, 1958). Most human tissues serve as sources of antigen, but liver and kidney are most satisfactory for routine AICF tests. Specific organ involvement can not be correlated with higher titres to corresponding antigens. Severe florid cases of S.L.E. regularly give positive results to an AICF test, whereas quiescent treated cases give weaker or even negative results (Table III). The AICF reaction is not closely correlated with the clinical course or tissue incidence of the disease (Mackay and Larkin, 1958).

TABLE III.

Correlation of Auto-Immune Complement Fixation (AICF) Reaction with L.E. Cell Test.

Diagnosis.	Number Tested.	Number with Positive Result to L.E. Cell Test.	AICF Test.[1]	
			Number Positive.	Percentage Positive.
Classical S.L.E.	40	40	28	70
Rheumatoid arthritis with positive results of L.E. cell test	4	4	3	75
Lupoid hepatitis	10	10	8	80
Atypical S.L.E.	4	3	3	75

[1] Of 486 normal individuals 3% gave a positive AICF reaction (Mackay and Larkin, 1958).

The effective antigenic material in the AICF test is unknown, although it may be subparticulate cytoplasmic components, nuclear material or both. Since it is improbable that antinuclear antibodies are also responsible for positive results to Wassermann and Coombs tests, it must be assumed that various antibody globulins may be elaborated in S.L.E. and related conditions.

5. Dense collections of lymphocytes and plasma cells, which are characteristic of certain lupus lesions, may represent sites of local auto-antibody production. A parallel can be drawn with the auto-immune thyroiditis of Hashimoto's disease. The immunological pathogenesis of this condition now rests on good evidence, for an identical process can be produced in the experimental animal by "immunization" with the animal's own thyroid gland (Witebsky *et alii*, 1957). The auto-antigen is thyroglobulin, which is immunologically reactive because it is "unfamiliar" to antibody-producing tissues; the antibody is probably formed by lymph follicles present in the gland itself. Episodes of tissue damage may cause leakage of thyroglobulin antigen, with further local antibody production, and a self-perpetuating or vicious-circle disease process is thus readily envisaged. There is no evidence that a similar mechanism also operates in S.L.E., and with the possible exception of nucleoprotein no offending auto-antigen such as thyroglobulin can be identified; however, the histological appearances of lymphocyte and plasma cell aggregates, similar to those seen in Hashimoto's thyroiditis, are suggestive.

At least two mechanisms could be responsible for production of tissue-damaging antibodies. First, antibodies may be developed to altered tissue components rendered antigenic by disease or to essentially "unfamiliar" antigens such as thyroglobulin. Secondly, tissue damaging antibodies may be synthesized excessively as a direct result of an intrinsic disease process of, or mutation in, antibody-forming tissues. Such abnormal antibody formation may reside in lymphocyte and plasma cell aggregates which possibly have local tissue specificity. The factors initiating this process and determining what tissues will be involved are unknown, although subendothelial tissues may have a particular susceptibility.

If this concept is correct, lupus erythematosus and other "collagen diseases", acquired hæmolytic anæmia and thrombocytopenia, Hashimoto's thyroiditis, the lupoid type of hepatitis, and certain other conditions may all have a basically similar pathogenesis. Since evidence justifying the term "auto-immune" is lacking and the term itself in this context is contradictory (literally "self-safe"), these diseases are better referred to as "autoclastic" or "self-breaking down" conditions.

Treatment of Lupus Nephritis with Steroid Hormones.

There is little doubt that the prognosis of S.L.E. has considerably improved since the introduction of cortisone (Dubois, 1956). This may be due to rapid control of fulminating episodes of the disease.

At present, the major threat in S.L.E. is the development of the insidiously progressive renal lesion, and this often determines the ultimate prognosis of the disease. It is uncertain whether steroids influence the renal lesion (Talbott and Ferrandis, 1956); this problem has been approached by renal biopsy studies in a group of 12 female patients with classical S.L.E. taking continuous cortisone therapy for periods of two to five years (Table IV).

Cortisone dosages in our cases ranged from 50 to 150 milligrammes per day. Patients with S.L.E. appeared to tolerate steroid hormones well, and apart from varying degrees of "moon face" no serious complications of therapy

TABLE IV.

Effect of Cortisone Therapy (50 to 150 Milligrammes per Day) on the Evolution of Renal Disease in 12 Patients with Severe S.L.E.

Number of Cases.	Initial Findings.	Results of Treatment.		
		Number of Cases.	Clinical Status.	Serial Renal Biopsy Findings.
4	Normal urine in all, biopsy result normal in three.	2	Almost complete remission.	No renal lesion after six years and three years.
		2	Remission; intermittent mild relapses.	Lupus nephritis (slowly progressive) developed whilst on therapy.
3	Biopsy evidence of mild to moderately severe nephritis.	2	Moderately good remission.	Renal lesion arrested for three and four years.
		1	Complete remission.	Arrest with slight retrogression.
5	Severe renal lesion; biopsy confirmation in three.	2	Death within six months, steroids ineffective.	Severe progressive lupus glomerulonephritis.
		1	Temporary remission; death within 12 months.	Severe progressive lupus glomerulonephritis.
		1	Massive steroid therapy; sudden death; no autopsy.	Severe progressive lupus glomerulonephritis.
		1	Death within four years after partial remission.	Severe progressive lupus glomerulonephritis.

occurred. In equivalent dosage, cortisone was found to be as satisfactory as prednisolone, and sodium retention was not a significant problem.

In four cases the initial renal biopsy was normal, but two developed glomerular lesions despite taking 125 milligrammes of cortisone daily. In three cases in which the renal biopsy showed only mild to moderate renal damage, cortisone treatment was associated with histological arrest of the glomerular damage, in keeping with an over-all clinical remission. Five cases had severe renal damage, with varying degrees of azotæmia and hypertension; cortisone failed to arrest significantly the course of the renal lesion in four of these patients.

A considerably longer period of observation will be required before the value of steroid therapy can be assessed in lupus nephritis. Cortisone clearly did not prevent the development or progress of the renal lesion in all cases, and was of least benefit in advanced or terminal cases of lupus nephritis with hypertension and uræmia. However, it is encouraging that three of the eight patients with a renal lesion have shown histological evidence of arrest whilst on protracted steroid therapy.

Summary.

Systemic lupus erythematosus (S.L.E.) mainly affects young adult females. The severity and clinical manifestations vary greatly, but the skin, joints, kidneys and serous membranes are most commonly involved. A developmental predisposition to S.L.E. may exist, and the disease may be initiated by various types of tissue injury.

Cases of hepatitis in which the L.E. cell test gave positive results (lupoid hepatitis) were closely studied. The status of this syndrome remains uncertain; it may represent a lupus variant.

Evidence is adduced in support of the hypothesis that immunological responsiveness is a factor in the pathogenesis of S.L.E.; the high incidence (75%) of positive reactions in the auto-immune complement fixation test and the frequency of plasma cell and lymphocytic aggregates in affected tissues are considered significant.

The effect of steroid hormones in lupus nephritis was evaluated by serial renal biopsy studies. Severe nephropathies were unimproved by cortisone, but three patients with early lesions have shown clinical and histological evidence of arrest.

Acknowledgement.

I wish to thank the honorary medical staff of the Royal Melbourne Hospital for permission to search the records of the hospital.

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PSYCHOLOGICAL ASPECTS OF CAR ACCIDENTS.[1]

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Sydney.

THE question of the personality of the driver, and particularly of the personality of the accident-prone driver, is of importance. Webster defines an accident as an event which proceeds from an unknown cause, or as an unusual effect of a known cause, and therefore not expected. As far as car accidents are concerned, this definition is wrong. Car accidents can be traced usually to known causes and their effect is not unusual; some of them are due to irregularities in the psychological make-up of the driver.

A man drives as he lives. His personality is usually investigated if he lives badly. Why should it not be investigated if he drives badly?

The human element and its role in causing car accidents has been investigated very little up till now. It was the physical condition of the driver which was mostly investigated, and even this not in a very satisfactory way. Some investigations were made into the psychological aspects of driving, but the majority of tests applied were sensorimotor and coordination tests, for instance tests on the reaction time, coordination and binocular vision on the

[1] Read at the meeting of the Special Group of Neurology and Psychiatry, New South Wales Branch of the British Medical Association, October 15, 1957.

thalamic level, and tests on judgement and caution on the cortical level.

Projective personality tests were not used very much till now for the purpose of screening of accident-prone drivers. Tillmann (1949) investigated family background, developmental factors, behaviour at school, adjustment at work and marital happiness of 100 accident-prone drivers. Conger and allies (1957) used the Allports-Vernon values test for the purpose of assessing the personality of the driver. They came to the conclusion that subjects who had had no accidents were consistently more orientated towards religious values.

It is the intention of this paper to make a preliminary attempt towards the development of a short questionnaire which would help first, to pick up the accident-prone persons, and secondly, to educate them by showing faults in their emotional make-up.

Intelligence has nothing, or very little, to do with accident-proneness. It was therefore not investigated in the present inquiry.

Car accidents are influenced by (*a*) the construction of roads; (*b*) car design; and (*c*) the human element.

The human element influences driving in, broadly speaking, four areas. First we have the personality of the driver; secondly, the personality of the pedestrian; thirdly, the personality of the passenger; and fourthly, the personality of the police officer.

It is proposed to discuss in this paper only the personality of the driver, not because the driver is the more disturbed person, but only because it is easier to gather information about him. It is intended to investigate the personality of the pedestrian, the passenger and the police officer in the future.

The personality of the culpable driver is also omitted from this paper. There is no doubt that a person charged in court and sentenced for a more serious driving offence has obvious and visible defects in his personality. These defects are usually so pronounced that they are discovered by non-doctors in the course of legal proceedings. There would be, therefore, in these cases, no need for finer screening tests. That refers to grossly negligent driving involving human injury or death, driving under the influence of alcohol or drugs, run-away driving, joy driving, etc. The personality of the learning driver was equally omitted from the present discussion. It is a topic of great interest and will be taken up later.

Drivers who developed a neurotic reaction after a car accident were not considered in this paper. The following discussion was limited to the ordinary man in the street, who in his driving career faces traffic offences and car accidents more frequently than his fellow driver.

Sources of Information and Statistical Data.

The investigation of accident-prone drivers lends itself easily to statistical inquiry, as excellent data are available.

Information for the purpose of preliminary assessment of the personality of the accident-prone drivers was derived from two sources: (*a*) The report of the Commissioner for Motor Transport for the year ended June 30, 1956, which contains certain statistical data of importance. (*b*) A questionnaire containing 36 questions was given to several professional groups of drivers: to doctors, lawyers, truck drivers, taxi drivers, young drivers, etc., with the request to answer the questions with a "yes" or a "no". This questionnaire contained groups of questions appearing to be of importance in assessing certain personality traits. The questions were partly new and partly taken over from the Bernreuter Personality Inventory and from the Cornell Index Form II, some of them being modified.

The frequency of accidents and casualties is due to human factors and to circumstances. No figures are quoted here, but accidents do happen more frequently on Saturdays between 4 p.m. and 8 p.m., in summer (December), in males, in young people aged 21 to 30 years and in old people over 60 years of age, in taxi drivers and in motor-cycle drivers. In all these cases the human factor is only partly concerned, the other part of causation being due to circumstances. The causes of car accidents due to the human factor only are inattentive driving, not observing the right of way, excessive speed, pedestrians, not keeping to the left, pulling out suddenly from the kerb and driving under the influence of alcohol.

It is important to know that every fourth person in New South Wales has a driver's licence, that there were in 1955/6 38,000 road accidents in which 17,000 persons were injured and 800 killed, and that daily 46 persons are injured and two killed in road accidents. If we compare these figures with figures obtainable from the United States of America, where 2,000,000 persons were injured and 38,000 killed in 1955/56, and daily 5500 persons are injured and 100 killed, we see an increase in casualties and fatalities far above the increase in population. It could be related to the number of vehicles on the road in the U.S.A. Whatever the cause, we should be aware of the possibilities of a similar increase in this country.

The human factor is important in causing car accidents, as over 80% of all road accidents and casualties are due to human failure. Inattentive driving and not giving the right of way are major causes and range as high as 25% and 20% respectively. Pedestrians cause 10% of accidents; excessive speed ranges only 10%, and is not much higher as a cause of accidents than pulling out suddenly from the kerb without giving a sign (5%), or not keeping to the left (8%). Amazingly, alcoholism is responsible for only 7% of accidents.

The questions (Appendix I) were purposely rearranged (Appendix II) to mislead the person questioned. Some of them were cover questions in place of questions which could cause embarrassment to the patient (epilepsy, depressive states, nervous breakdown). For the same reasons questions referring to the family, broken home, type of upbringing and working record were omitted. The importance of these questions in future investigations has to be stressed.

Figure I shows the relation between certain personality traits and the frequency of accidents sustained.

All answers in the questionnaires (Appendix II) were plotted against the frequency of accidents. In groups containing less or more than six questions corrections were made to bring the final figure to a six-question level. Fifteen questionnaires were taken from the groups of drivers who had had no accidents, those who had had one accident and those who had had two accidents in two years; from the group who had had three accidents in two years and from those who had had four accidents in two years, only 12 and nine questionnaires respectively were available, and corrections to the 15 level made accordingly.

This study is a pilot study and has no statistical value. It is intended to draw attention to certain features of the curves presented, which appear to be characteristic and will require further re-checking: (*a*) emotional instability and immaturity and mental immaturity are greater in accident-prone drivers; (*b*) social intelligence and ability of expression in social symbolisms decrease in accident-prone drivers; (*c*) paranoidal attitudes rise sharply in the four accident group of accident-prone drivers.

Answers given to questions on introversion were nearly all negative. They were probably too obvious and produced embarrassment or suspicions. Because of that they were not plotted graphically.

Personality of Accident-Prone Drivers.

The presented material is of some value in discussing the personality of the accident-prone driver. Certain conclusions are obvious.

Drivers returning home between 6 p.m. and 8 p.m. are under emotional tension of the accumulated stresses during the working day. They are further expecting to be relieved from this tension after they arrive home. They are physically tired and they may be under the influence of alcohol.

The frequency of accidents on Saturday may be due to relaxation of the routine of work, driving along unconditioned routes or driving in company of the family.

The low incidence on Tuesday may be caused by stability of the second working day, when the driver is not yet tired by the week's work, and he is relaxed enough after the switch-over from weekend to work on Monday. This switch-over phenomenon is observed also in the 4 to 6 p.m. or to 6 to 8 p.m. increase of accidents.

The frequency of accidents in December could be attributed to the holiday period. But in the U.S.A. the most accident-prone month is August, not December. The

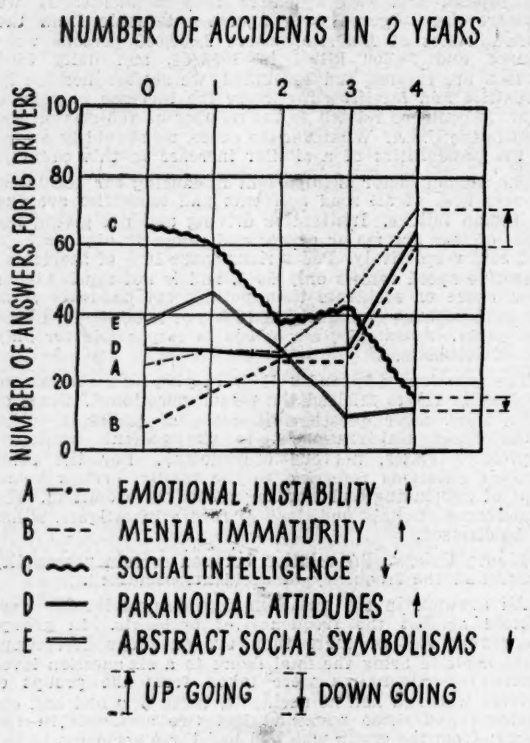

FIGURE 1.
The relation between certain personality traits and the frequency of accidents.

conclusion derived from that is that summer and not the holiday period is responsible for the frequency of accidents. We know that nervous tension is greater in summer, and so nervous tension correlates again with accident-proneness.

With taxi-drivers one is not sure whether their nervous tension or their mileage of driving is responsible for their accidents. But excessive mileage of driving without rest is conducive to the development of nervous tension, and so both factors correlate.

Further analysis of statistical data indicates other causes of accident-proneness besides nervous tension and "switch-over" phenomenon. For instance, the frequency of accidents when pulling out from the kerb would indicate preoccupation with an activity just before entering the car and inability to focus attention on the new activity. Not giving right of way would indicate preoccupation with one's self or introversion and withdrawal from reality.

These are some possible psychological explanations of the frequency of accidents occurring at certain times, at certain places and in certain circumstances. Besides these there is the personality of the driver who will sustain accidents in any place and in any circumstances—the personality of the unbalanced and neurotic driver. There is no doubt that these drivers are emotionally immature and unstable, mentally immature, introverted, socially inadequate and paranoid. Their ego is weak and the car is the extension of their ego. As they are weak, they develop a compensatory drive for power. That means, in consequence, the desire to disregard authority which is a threat to their own power. Further, it means manifestation of power by overtaking and sounding the horn. Another form of manifestation of power is eccentricity and self-adoration as shown in flashy accessories and eccentric hats.

Another personality pattern occurring in accident-prone drivers is inability to use expressive symbolisms. Language is a verbal symbolism and is used in a very exact way. A word is pronounced in a clear-cut way and has an exact meaning. If pronunciation is changed even slightly, a person may not be understood. A driver is rendered mute. He gesticulates; but then again he has to gesticulate correctly in order to make himself understood. Accident-prone drivers are not good gesticulators. They do not like to wear badges, decorations or uniforms as expressive symbolisms. Reversely, gesticulators are good drivers. For instance, Italians are well known in this capacity, as well as other members of explosive cultures.

There are certain personalities who make bad drivers not by constitution or upbringing, but by present acute or subacute situational stresses. A worrying personal problem may make a driver accident-prone. He may be forced into competition in business and unable to fulfil requirements. He may then compensate or symbolize by competition on the road, to show that he is at least good in this area.

Then there is the frustrated driver: one who leaves his home after an exhibition by a nagging wife; or the traveller who does bad business; or the prospective lover who was refused the pleasures of an affectionate repose.

And finally, the tired driver. Mental tiredness, not only physical tiredness, makes a driver accident-prone. That does not require discussion.

To sum up, the personality of the accident-prone driver is distorted. That may be due to certain facilitating conditions, to the constitutional make-up, to current situational stresses, or to all three factors together.

Suggestions for Future Handling of the Problem.

It remains now to outline possible ways of management of accident-prone drivers, and measures to prevent drivers from becoming accident-prone. The problem boils down to an attempt to re-educate persons concerned, to help them to adjust and to make them aware of their defects. Such an attempt should be made on a purely voluntary basis. It is therefore suggested that an organization analogous to the Marriage Guidance Council should be formed and named accordingly "Drivers' Guidance Council". This body would be composed of psychiatrists, psychologists, social workers and ministers of religion. Persons feeling defects in their driving capacity could turn to this council for advice and treatment. Judges could direct traffic offenders to these clinics.

The following suggestions (besides regular safety measures) are further made to help reduce accident-proneness.

1. Accident-prone drivers should avoid having passengers sitting beside them. Many drivers drive worse when observed or talking to somebody. Besides, it is known that the person seated next to the driver is nervous and tense and operates imaginary pedals. This tension can easily influence the driver himself verbally, visually or tactically.

2. Lectures on driving safety and so on should not be delivered by police officers. Accident-prone drivers are usually hostile towards authority. It is suggested that the Department of Transport should take over these activities.

3. Driving lessons should start early at school. Driving is a privilege and as such every driver should be well bred in this art. Victoria has already organized a driving school for youngsters on those lines.

4. Ministers of religion should play a part in the education of drivers. Reference is made here to a concern about bad driving expressed by the Catholic Church. A reform of canon law is considered to declare bad driving as a sin. A recent investigation on the Allport-Vernon study of values by Conger and allies shows that subjects who had had no accidents were consistently more orientated towards religious values.

5. Persons involved in major accidents should not be neglected psychologically. It is not enough to dress their wounds. They sustain a severe psychological shock, which has to be neutralized, otherwise accident-proneness may ensue.

6. Repeated offenders should be screened by psychological tests. Their driver's licences may then be restricted, for instance, from driving on Saturday, or driving between 5 p.m. and 8 p.m., and so on. It is suggested that cancellation of licences should be restricted to very exceptional cases. Otherwise the public will be frightened, suspicious and therefore non-cooperative.

Summary.

The personality of the driver and its deviations in accident-prone drivers is discussed. The reports by the Commissioner of Transport contain valuable statistical data. Additional information is obtained from questionnaires distributed to different groups of drivers. The discussion is limited to the personality of the driver. The importance of investigating in future the personality of passengers, pedestrians and police officers is stressed. Accident-prone drivers appear to be emotionally, mentally and socially immature. They may tend to paranoidal attitudes. They cannot express themselves in abstract social symbolisms. Certain environmental factors not recognized as precipitating personality disturbances are discussed.

Suggestions are made for future handling of the problem. It is proposed to form a Drivers' Guidance Council, a voluntary organization working on principles similar to the Marriage Guidance Council. Further suggestions are made to educate drivers on psychological principles and to encourage them not to do things they cannot do, or those they cannot do at certain times, in certain places and in certain circumstances. Finally, attention is drawn to the necessity to take psychological care of people involved in accidents during their rehabilitation.

To the writer's knowledge no paper has been published yet on psychological aspects of car accidents in this country. This aspect, when the human factor is involved, appears to be as important as road safety measures.

Acknowledgements.

I wish to express my thanks to the Minister for Transport, the Honourable H. G. Enticknap, for encouragement and assistance in preparing this paper. I wish to thank the Commissioner for Motor Transport, Mr. W. A. Walsh, for making reports and statistical data from his department available.

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APPENDIX I.

Questionnaire.

General.

1. Age: 2. Occupation: 3. Social status: 3(a). Number and ages of children: 4. Nationality:
5. Number of traffic offences in last two years (excluding parking offences):
6. Number of car accidents in last two years:
11. Have you ever felt like fainting: [cover question for epilepsy.]
12. Did you ever suffer from nervous tension for long periods of time: [cover question for nervous disorder.]
13. Do you get spells of exhaustion: [cover question for circular moods.]

Emotional Instability and Immaturity.

8. Are you often in a state of excitement:
17. Does the sight of blood make you sick:
24. Does it make you tense or angry to be forced to do nothing:
30. Do you get angry seeing people making stupid mistakes:
31. Do you frequently act under impulse:
34. Does alcohol make you gay, sad, tired, forgetful or excited:

Mental Instability and Immaturity.

9. Do you express yourself better in speech or in writing:
7. Do you prefer to act first and talk afterwards:
15. Did you dislike school very much:
23. Are you generally successful in life:
27. Is your memory for recent events or names poor:

Social Intelligence and Inferiority.

12. Are social customs and manners a necessary part of your living:
19. Are you shy in company:
20. If you see an accident, do you run away, become curious or give aid:
25. Do you keep in the background at social functions:
33. Do you usually object when a person steps in front of you in a queue:
36. Are you ambitious:
29. Have you ever heckled a public speaker:

Introversion.

10. Do you have periods of wanting to get away from people:
16. Do you often "wake up" at a place and forget how you got there:
32. Do you often have periods of great loneliness:

Paranoidal Attitudes.

14. Do you usually feel misunderstood:
22. Do people usually pick on you:
26. Are your neighbours hostile to you and your family:
28. Do you tend to repeat and check on things done: [cover question for compulsive personality.]

Abstract Social Symbolisms.

18. Do you like wearing badges, decorations, club insignia:
21. Do you gesticulate when talking:

APPENDIX II.

Questionnaire as Used in Investigation.

This questionnaire is to help in the psychological assessment of personalities of accident-prone drivers. No names mentioned, therefore confidential. Please try to answer the questions truthfully.

[Then follow the questions set out in Appendix I, re-arranged in the numerical order indicated.]

THE SECOND AUSTRALIAN EXAMPLE OF ANTI-S ASSOCIATED WITH THE MNSs BLOOD GROUPS.[1]

By M. L. VERSO AND R. T. SIMMONS,

From the Red Cross Blood Transfusion Service (Victorian Division), and the Commonwealth Serum Laboratories, Melbourne.

TEN years ago Walsh and Montgomery (1947) published a report of an unusual human serum containing two atypical antibodies. One was an incomplete anti-Rh_0 (anti-D) and the other was an antibody which had not previously been described. It bore no relationship to the ABO, Rh, P, Lutheran, Kell or Lewis blood group systems, and gave positive reactions with 48·6% of 253 individuals tested in their initial series. Subsequently the name anti-S was given to this antibody and S to the corresponding blood factor.

The purpose of this paper is to review briefly the literature on the S factor, to describe the characteristics of the second Australian example of an anti-S serum, to report the results of a survey made with this serum of the incidence of the S factor in the Australian population, and to discuss the importance of this factor in medicine, genetics and anthropology.

Review of the Literature.

After Walsh and Montgomery's initial discovery further papers appeared in which additional work on the original anti-S serum was reported. Sanger and Race (1947) and Sanger, Race, Walsh and Montgomery (1948) proved, by statistical and family studies, that the S antigen had a close association with the MN system. It was postulated that this association could be explained by the existence of allelomorphs at the MN locus, namely, MS, M, NS and N, or, alternatively, that S was a gene closely linked to the MN locus. If the second alternative were correct, the existence of a second allele, s, could be predicted with an incidence of 88% in the English population. This prediction was subsequently confirmed by the discovery of the first example of anti-s by Levine, Kuhmichel, Wigod and Koch (1951). Since then three further examples of anti-s have been described by Sanger, Race, Rosenfield and Vogel (1953), by Fudenberg and Allen (1957), and by Albrey and Simmons (1958), respectively. This last example was found in Australia.

After the initial discovery of anti-S, several further examples were found, and five years later Levine, Ferraro and Koch (1952), in reporting one, were able to collect a series of 12 cases from the literature. Some of the cases were naturally occurring, while others were of the immune type, having arisen as a result of immunization by either blood transfusion or pregnancy. Examples of anti-S were found in cases of hæmolytic disease of the newborn, and in association with blood transfusion reactions. There were fatalities associated with each of these conditions. Generally, it was possible to detect the antibody either at 37° C. or at room temperature. One case was detected only by the indirect Coombs test.

Since 1952 other examples of anti-S have been described by Hässig and Leya (1953), by Thomas and Pettenkofer (1955), by Constantoulis, Dunsford and Paidoussis (1955), by Bodart and Speiser (1956), and by André, Salmon and Malassenet (1956), but the antibody is still regarded as a rarity. Bodart and Speiser's case is of particular interest in that the antibody occurred in a patient suffering from acquired hæmolytic anæmia. In the case reported by André *et alii* the antibody was detected by the Coombs test on trypsinized cells in a serum containing a mixture of antibodies. It would seem then that a total of about 18 cases have been reported in the literature.

The complexity of the MNSs system was increased further when Wiener, Unger and Gordon (1953) described an antibody which they called anti-U. This antibody agglutinated the red cells of all of 690 Caucasians tested, but failed to agglutinate the cells of four out of 425 New York negroes. In a later report (Wiener, Unger and Cohen, 1954), it was shown that this antibody agglutinated the blood of all of 1100 Caucasians tested, and failed to agglutinate the cells of 12 out of 989 New York negroes. In negroes the gene frequencies are: UU = 79·2%, Uu = 19·6% and uu = 1·2%. These authors thought that the factor concerned was governed by a pair of allelic genes U and u where gene U determined the presence of the factor and u its absence. In investigating a second example of anti-U, Greenwalt, Sasaki, Sanger, Sneath and Race (1954), found that two samples of blood that were not agglutinated by anti-U were also not agglutinated by anti-S or anti-s. In a later paper this was confirmed on further samples (Sanger, Race, Greenwalt and Sasaki, 1954). The most likely explanation was thought to be that there was a third allele at the *Ss* locus, S^u, although other explanations, such as the existence of suppressor genes, were possible. If the presence of a third allele was the true explanation, the specificity of anti-U could best be expressed as anti-S + anti-s, or anti-Ss, and those subjects whose cells reacted negatively to the antibody were the rare homozygotes S^uS^u (uu). If an anti-S^u serum were discovered it would establish positively the existence of a third allele and confirm this theory, but up to date no such serum has been found.

There are two other antigens related to the MNSs system, but their precise relationships to it are not clear. These are the Hunter factor described by Landsteiner, Strutton and Chase (1934), and the Henshaw factor reported by Ikin and Mourant (1951). Both these factors are associated with the Negro race. It is probable that the Henshaw antigen occurs at a third locus closely linked to the Ss locus.

Report of a Case.

The patient was a married woman, aged 50 years, suffering from attacks of spontaneous hypoglycæmia. As the presence of a pancreatic tumour was suspected, it was decided to perform a laparotomy. Prior to operation, the patient's blood-group was found to be group O, Rh positive, and two bottles of this group were cross-typed against the patient's serum. The blood of one donor was reported to be incompatible. There was no history of previous blood transfusion or of hæmolytic disease of the newborn. The patient had had seven children of whom six were living. One boy had died of pneumonia. The third child, a girl of 15 years, was suffering from congenital deafness thought to be due to an attack of rubella from which the mother had suffered during the pregnancy.

The patient's serum was submitted to the Blood Transfusion Service, where initial screening tests for antibodies were performed with a small panel of cells which included three Rh-positive samples, one rh″ (*cdE*) sample and one Rh-negative sample. Each sample was tested against the serum using a glucose-citrate suspension of cells (Simmons, Graydon, Semple and Taylor, 1951), a suspension of cells in albumin-fortified plasma (four parts of plasma to one part of albumin), and the indirect Coombs technique. A strong agglutination occurred with the rh″ cells suspended in albumin-fortified plasma, and a doubtful reaction with these cells suspended in glucose-citrate. The indirect Coombs test gave a negative result. The presence of an atypical antibody having been confirmed, further serological investigations were performed to identify it and to define its characteristics.

Serological Investigations.

To identify the antibody, the serum was first tested against a small panel of cell samples from members of the staff of the Red Cross Blood Transfusion Service whose blood group antigens were known. The samples were tested using cells

[1] Read by one of the authors (M.L.V.) before the Section of Clinical Pathology of the British Medical Association (Victorian Branch) on August 9, 1957.

suspended in glucose-citrate, albumin-fortified plasma and 30% bovine albumin and by the indirect Coombs test and the P.V.P. (10% polyvidone) method (Ward, 1953).

In this group of samples, all those from S-positive individuals gave strongly positive reactions with cells suspended in albumin-fortified plasma and in 30% bovine albumin, and weaker reactions with cells suspended in glucose-citrate solution. All S-negative samples gave negative reactions. None of the samples in the panel gave positive reactions with the serum when the indirect Coombs test or the P.V.P. test was used.

In view of the important implications of the negative Coombs test, further investigations were made to exclude technical fallacies such as the prozone phenomenon, or a loss of potency by the reagent.

Serial dilutions of the serum to one in 64 were made, and the indirect Coombs test was performed on each dilution using S-positive cells. The results were negative in each dilution. The serum was also tested by the indirect Coombs technique using S-positive cells and varying dilutions of the Coombs reagent to one in 64. Once again there was a negative result with all dilutions. On the other hand, a control serum containing incomplete anti-Rh_o antibody gave strongly positive reactions against Rh_o-positive cells when tested by the indirect Coombs test using the same reagent undiluted, and diluted one in eight, thus confirming the potency of the reagent used.

Further tests were then made against a panel of 50 members of the staff of the Commonwealth Serum Laboratories whose S groups were known. All known S positive individuals gave positive reactions, and all known S negative individuals gave negative reactions. The staff panel of several hundred members had been tested originally with the anti-S serum found by Pickles (1948). This serum is fully active after storage at 5°C. for nine years.

Antibody Titres.

Titration of the antibody using saline dilutions of the patient's serum when tested with S-positive cells in glucose-citrate, yielded a titre of two. Saline dilutions of serum, when tested with S-positive cells in 30% bovine albumin, yielded a titre of four, while dilutions of serum made with normal group AB serum, when tested with cells in 30% bovine albumin, yielded a titre of 12.

Thermal Amplitude.

Saline dilutions of the patient's serum when tested against S-positive cells in glucose-citrate gave identical titres at 4°C., 20°C., and 37°C. Both saline dilutions and dilutions of the patient's serum using AB serum as the diluent, when tested against S-positive cells suspended in albumin, yielded identical titres at 20°C. and 37°C., although the agglutinations were stronger at the lower temperature. These results show that the antibody had a wide thermal amplitude.

Other Characteristics.

The serum did not freeze-dry successfully and did not give reliable reactions after neutralization of the anti-A and anti-B agglutinins by A and B blood group specific substances, so that it was not suitable for general distribution as a testing serum.

Family Studies.

The blood groups and genotypes of the patient's family are set out in Table I. It is impossible to say on the evidence available whether the antibody was naturally occurring or acquired. As there was no history of blood transfusion, any acquired antibody must have been the result of immunization during pregnancy. It will be noted that the first two children are S negative and the third child, who is the only one known to have any congenital lesion, is the first living member of the family to be S positive. There is no reason to believe that her deafnes was due to any cause other than the rubella from which the mother had suffered during the pregnancy. Details are not available of a male child who died of pneumonia, and he must be regarded as possibly S positive and thus another source of immunization. The twins, children five and six, are also S positive, and the fact that they gave no history of hæmolytic disease suggests that there was not an immune antibody present at the time of their birth, but does not exclude the possibility that there was an antibody present which was naturally occurring, and not placenta-permeable. These twins could have been the source of the stimulus.

Distribution of S Factor in White Australians.

A total of 510 random blood samples from group O donors was tested with the present anti-S serum. The tests were performed on slides using 10% to 15% cell suspensions in 30% bovine albumin mixed with an equal quantity of the patient's serum, and were read after 60 minutes at room temperature. Of these, 274 (53·7%) gave positive reactions, while 236 (46·3%) did not react. The calculated gene frequencies are $S = 0{\cdot}32$, $s = 0{\cdot}68$, which compare well with those reported in other series. Comparison of the gene frequencies found in several surveys in Australia are given in Table II. The frequencies were calculated from results obtained with anti-S serum, and, in one series, with anti-s. The results from two series of tests in England with anti-S serum are also given.

The *S* and *s* gene frequencies in Australia and England are approximately 0·30 and 0·70 respectively. Walsh and Montgomery (1947) reported the results of two surveys. One series consisted of 140 individuals in which 59·3% of the samples were S positive, the calculated frequencies being $S = 0{\cdot}36$ and $s = 0{\cdot}64$. The other series consisted of 253 blood samples of which the MN types were unknown, and in this series 123 (48·6%) were S positive, the calculated frequencies being $S = 0{\cdot}28$ and $s = 0{\cdot}72$. A survey by Simmons and Graydon (1950) resulted in an incidence of 48·2% positive samples with frequencies of $S = 0{\cdot}29$ and $s = 0{\cdot}71$. A survey by Albrey and Simmons (1958), using an anti-s serum found by them, gave identical frequencies.

Discussion.

The S Factor in Medicine.

Although approximately 50% of Caucasians lack the S factor, as shown in this and other surveys, there appear to be only 18 cases of anti-S reported in the literature in the last 10 years. This suggests that the S factor is a poor

TABLE I.
Blood Groups in the A Family.

Name.	Age (Years).	Blood Groups and Genotypes.						
		ABO	MNS	Rh	P	Le^a	Fy^a	K
Mr. A.	49	O	*MS Ms*	R^1R^1	—	+	+	—
Mrs. A.	49	O	*Ns Ns*	R^1r	+	−	−	−
Child 1	18	O	*Ms Ns*	R^1r	+	+	+	−
Child 2	16	O	*Ms Ns*	R^1R^1	−	−	−	−
Child 3	15	O	*MS Ns*	R^1R^1	−	+	+	−
Child 4	8	O	*Ms Ns*	R^1r	−	+	+	−
Child 5	6	O	*MS Ns*	R^1r	+	−	−	−
Child 6	6	O	*MS Ns*	R^1r	−	+	+	−

TABLE II.

Distribution of S and s in Australian and in English Populations.

Population.	Authors.	Number Tested.	Anti Serum Used.	Gene Frequencies.	
				S.	*s.*
Australia	Present Survey.	510	Anti-S	0·32	0·68
Australia	Simmons and Graydon (1950).	220	Anti-S	0·29	0·71
Australia	Walsh and Montgomery (1947).	140 253	Anti-S Anti-S	0·36 0·28	0·64 0·72
Australia	Albrey and Simmons (1958).	681	Anti-s	0·29	0·71
England	Race and Sanger (1954).	1419	Anti-S	0·33	0·67
England	Ikin *et alii* (1952), cited by Mourant (1954).	1166	Anti-S	0·30	0·70

antigen. Nevertheless, like other rare antibodies, the possibility of anti-S being present in a patient's serum should be kept in mind in blood transfusion practice and in antenatal care. As pointed out earlier, severe and even fatal cases of blood transfusion reaction and of hæmolytic disease of the newborn, and at least one case of acquired hæmolytic anæmia, have been associated with anti-S. Nor should it be forgotten that the antibody may be either naturally occurring or acquired, and that it may be of the complete or incomplete variety, and that, if incomplete, it may fail to react to one or more of the generally accepted methods of testing for incomplete antibodies. In at least one case the indirect Coombs test was the only means of detecting the antibody, while in the present case the antibody failed to react with the indirect Coombs test, and also with the P.V.P. test. In another instance anti-S was detected by the indirect Coombs test on trypsinized cells. This exemplifies once again that there is no single technique that will detect all antibodies, and the implications of these facts should be kept in mind in clinical practice, particularly when preparing for a blood transfusion. Hospitals should adopt methods of cross-typing that will detect incompatibilities due to the rare, as well as to the more common, antibodies.

The S Factor in Genetics and Forensic Medicine.

Since red cell antigens, unlike most other inherited characteristics, are governed by a limited number of genes, and as their determination is made by objective tests, they are of considerable value in the study of genetics, both in its theoretical aspects and in its practical applications, particularly in cases of disputed paternity and in the identification of individual blood samples. The S factor is of importance in this respect, but supplies of the testing serum are not generally available.

Before the discovery of the S factor there were six possible matings which could be demonstrated within the MN system, and with additional tests for the S antigen the value of the system increased tremendously. If anti-S serum is used in addition to anti-M and anti-N there are 21 phenotypically and 55 genotypically distinct matings possible. If anti-s is used as well, the MNSs system, as pointed out by Race and Sanger (1954), becomes one of the most discriminating of all the systems in distinguishing between two samples of blood. Unfortunately, the rarity of anti-s serum limits its use in laboratory practice.

The S Factor in Anthropology.

The results of surveys of the blood groups made in recent years on various races have given investigators an entirely new approach to physical anthropology, and Mourant's (1954) monograph on this subject is well known. Not only is it possible to correlate the blood groups of European races with what is known of their history, but also a study of gene frequencies gives useful clues to racial relationships and past migrations among peoples who have no written history.

The *Ss* alleles are proving useful when applied to this purpose. Thus, Race and Sanger (1954) mention as an example the fact that the MN blood groups of Australian aborigines and New Guinea natives are practically identical, yet the S factor is lacking in the former and present in the latter.

Summary.

The literature on the S factor is reviewed briefly and the characteristics of the second Australian example of anti-S are described. The antibody gave weak agglutination with S-positive cells suspended in glucose-citrate and strong agglutination with cells suspended in albumin or albumin-fortified plasma. The indirect Coombs test and the polyvidone (P.V.P.) test gave negative results when S-positive cells were tested against the serum containing the antibody. It is not possible to state whether the antibody was of the naturally occurring or of the immune variety. The results of a survey with this serum on samples from 510 Australian blood donors are given. In this series 53·6% were S positive with gene frequencies of $S = 0{\cdot}32$ and $s = 0{\cdot}68$. The value of the S factor in medicine, genetics and anthropology is discussed briefly. Stress is laid on the importance of using methods of cross-typing prior to transfusion that will reveal the less common, as well as the more common, antibodies. It is pointed out, once again, that the MNSs system is one of the most discriminating of all the blood group systems for distinguishing between two samples of blood.

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RADIATION HAZARDS TO THE FŒTUS.

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CERTAIN of the effects of therapeutic irradiation of the mother's pelvis on the fœtus *in utero* have been known for a quarter of a century after the analysis of Murphy (1930). These are (i) an increased tendency to abortion or premature labour; and (ii) an increased incidence of children either abnormal at birth or becoming abnormal later in life; this effect is particularly pronounced among patients who receive irradiation between the twelfth and eighteenth weeks of pregnancy. The commonest abnormality found is microcephaly.

These known effects were further confirmed by the Atomic Bomb Casualty Commission of the United States National Research Council from information concerning the populations of Hiroshima and Nagasaki after the 1945 atomic bomb explosions.

With the publication in the United Kingdom of the Medical Research Council (1956) report on "The Hazards to Man of Nuclear and Allied Radiations", further dangers came to be recognized, namely the effects of radiation on the genes of both the mother and the fœtus. The report stated that:

> There is little direct knowledge of the genetic effects of radiation on other organisms; namely that ionizing radiation has genetic consequences, chromosomes may be damaged or the genes may be caused to mutate more frequently. The latter change is the more important. . . .
>
> A large proportion of the genetically significant dose derived from diagnostic radiology is contributed by relatively few types of examinations of which fluoroscopic and radiological examination of the female pelvis is an important example.

Also in 1956 Stewart *et alii* put forward a preliminary report in which it was suggested that "children who are X-rayed before they are born are more prone to develop leukæmia and other malignant diseases than children who have not been X-rayed in utero".

Since then articles have repeatedly appeared in the daily Press and in popular women's journals, warning the pregnant woman of the dangers of radiation to her unborn child. Indeed, anxiety reached such a high level that one teaching hospital in Australia ceased to make an X-ray examination of the chest of the expectant mother. In the meantime all thinking obstetricians and radiologists have been taking stock of the situation, seeking to assess the genetic and leukæmogenic risks to the mother and fœtus and to compare them with the risks to both of withholding diagnostic X-ray examination and the information it would give.

It has recently been decided, by Dr. Colin Macdonald, Director of Radiology at the Royal Women's Hospital, Melbourne, by Mr. D. J. Stevens, Director of the Commonwealth X-ray and Radium Laboratories, and by myself, to investigate the radiation effects of diagnostic radiology on the mother and fœtus in obstetrics, especially in patients who have had an X-ray pelvimetry made during pregnancy. This survey is now proceeding and is concerning itself with an inquiry into the immediate and remote obstetrical consequences of every pelvimetry in pregnancy made at the Royal Women's Hospital since 1946. Its results will be reported at a later date.

Meanwhile there exists a considerable demand for a straightforward answer to the layman's question, "What is the risk from diagnostic radiology?" The Anti-Cancer Council of Victoria and the Royal Children's Hospital, Melbourne, have made available to me the records of 204 children under 10 years of age who have died from leukæmia in the past decade. It can be asserted that this number constitutes the "vast majority" of all children dying during this time; unfortunately no more exact estimate is possible. To the parents of these 204 children was sent a questionnaire, and, in tardy cases, a further letter. It was found finally that 32 could not be traced, but satisfactory details were secured about 171 of these children. Of the 171 mothers, 12 had had an X-ray examination during pregnancy, an incidence of 7%. This means that, although X radiation is put forward as a cause of leukæmia, it was concerned with only 7% of the cases in this series. In the Stewart series there were 269 cases of leukæmia, with an incidence of 15% of cases which were radiologically examined *in utero*.

Table I summarizes the details of the 12 pregnancies in which a radiological examination had been performed; this information was derived from the questionnaire. Four patients had had one film each, six patients had had two films each, and only two had undergone an X-ray pelvimetry involving many films.

When planning this survey it was the intention to obtain a suitable control series, which would have entailed matching each mother with another from the same district, similar as to age, parity, maturity and nature of radiation exposure. As these women were delivered in many different parts of the State up to 10 years ago, it would often have been difficult to obtain controls, especially in the smaller towns. When the incidence of mothers examined radiologically in the series was shown to be only 7%, it was considered that this was only a very little higher than the basic expectation of being examined radiologically for pregnant women in general, and for this reason no attempt was made to collect a control series. At the Royal Women's Hospital (not a good example) 14% of all patients were examined radiologically during 1956. In Stewart's series 9% of the controls were examined radiologically.

In the 10 years under consideration an average of 20 children under the age of 10 years died of leukæmia each year, and approximately one of these 20 had had an X-ray examination prior to delivery. The leukæmogenic risk due to X-ray examination of the mother (if Stewart's supposition is correct) therefore is one child per annum in Victoria.

What is the risk to the child if it is not examined radiologically *in utero*?

[1] Aided by a grant from the Anti-Cancer Council of Victoria.

TABLE I.

Details of Twelve Cases of Death from Leukæmia in Children, in which Radiological Examination had been Performed During Pregnancy.

Case Number	Period of Gestation at time of X-ray Examination (Weeks)	Type of Examination	Number of Exposures	Reason for Examination	Age of Child at Death (Years)
1	36	X-ray pelvimetry	8	Past history, Cæsarean section	1
2	40	X-ray pelvimetry	7	Poor obstetric history	4½
3	36	Abdomen	2	Uncertain of presentation	4
4	32	Abdomen	2	Uncertain of presentation	4½
5	32	Abdomen	2	Uncertain of presentation	2
6	24	Abdomen	2	Multiple pregnancy	3
7	32	Abdomen	2	Uncertain of presentation	Not known
8	28	Abdomen	2	Uncertain of presentation	2
9	38	Abdomen	1	Uncertain of presentation	5
10	36	Abdomen	1	Uncertain of presentation	6
11	20	Abdomen	1	Multiple pregnancy	4
12	16	Abdomen	1	Diagnosis of pregnancy	6

This is a difficult question to answer. In Victoria approximately 1000 children per annum are either stillborn or die within four weeks of birth. This figure reflects the fact that there are many hazards of labour, many of which can be substantially reduced when a diagnostic X-ray examination has supplied valuable information about them. It is certain that, each year in Victoria, more than two babies' lives are saved because of an X-ray examination of the mother. This affords no excuse for a feeling that an X-ray examination in pregnancy should be "just another test"; it is known that there is a genetic risk to the mother and baby, and therefore the following precautions should be taken. (*a*) When the chest is examined radiologically during pregnancy the abdomen should be suitably screened. (*b*) No X-ray examination should be made until the eighteenth week of gestation. (*c*) At all times the number of exposures should be kept to a minimum and clinical methods used as much as possible. (*d*) The number of films taken for an X-ray pelvimetry in pregnancy should be restricted and the examination made between pregnancies whenever possible.

Summary.

1. By questionnaire it was found that, of 168 children dying of leukæmia, 7% had been irradiated *in utero*.

2. If X radiation of the mother is a cause of leukæmia in the child it can account for only 7% of the total deaths from leukæmia in this series.

3. Of the child deaths from leukæmia in Victoria, there is only one per annum whose mother had had an X-ray examination during pregnancy. Each year there are 1000 stillbirths and neonatal deaths from other causes.

4. It is still not proven that X-ray examination of the mother's abdomen causes leukæmia in the baby. Lack of a control series makes it impossible to prove that radiation does not cause leukæmia.

5. Some rules regarding X-ray examination during pregnancy are set out.

6. Great care should be taken in exposing any pregnant woman to X rays because of the genetic risk to both mother and baby.

7. If on medical grounds information is required and an X-ray examination is the only means of obtaining it, the risk to the baby's life is greater if an X-ray examination is not made than it is if it subsequently develops leukæmia after the X-ray examination is made.

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THE RÔLE OF THE PRE-SCHOOL CENTRE IN THE TEACHING OF MEDICAL STUDENTS.

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THE following observations on the nature and progress of an interesting experiment in pædiatric teaching are based on an address given to the annual meeting of the Lady Gowrie Child Centre, Brisbane, in 1957. Included in the audience were many of the parents of children attending the centre, and one object of the address was to explain to them the value of the contribution they and their children were making to medical education.

During the five-year period 1953 to 1957, medical students in the final year of their course at the University of Queensland have attended the Lady Gowrie Child Centre, Brisbane. A total of 322 students has been involved. The idea of using the facilities of the Lady Gowrie Centre for the instruction of students emanated from the Department of Child Health in the University of Sydney, and the methods developed there have already been described by Dr. F. W. Clements (1957). Owing to shortage of staff and to a rather shorter pædiatric term, the Queensland programme, although basically similar, has been modified in some respects. Owing to this modification and to the smaller number of students, it has been possible, despite staff shortage, for all final-year students to participate.

The medical course at the University of Queensland as in other Australian Universities occupies six years, but is unique in that students attend the children's hospitals for pædiatric teaching for one term in both the fifth and sixth years. These terms are of eight weeks' duration, and during that in the final year four weeks are spent in residence at the hospital.

It must be remembered that the inclusion of instruction in diseases of children is a comparatively recent development in the history of medical education in British countries, and although the history of the University of Queensland Medical School is comparatively short, even here in the early days relatively little attention was paid to it.

The term "diseases of children" has been used here deliberately because in fact, up to a time that coincided almost exactly with the foundation of our medical school, such instruction as was given was concerned almost exclusively with the treatment of sick children in hospital. Then, during the war and in the immediate post-war period a great change of thought occurred. The value of child life as a national asset was being realized, and the teaching and vision of pædiatricians such as Sir Leonard Parsons and Sir James Spence exercised a great and beneficent influence on planning and subsequent developments. Thus we find, following the famous phrase in the Goodenough Report (1944), that "teaching on the health and diseases of children should run like a golden thread through the whole of the curriculum", the recommendations, *inter alia*, that: "The attention of the student . . . should by no means be confined to children who are ill. He should be brought into touch as much as possible with healthy children. Child health constitutes one of the main elements in preventive medicine. Social and environmental conditions are at least as important and can be studied as usefully in the relation to children as adults." The interim report of the Pædiatric Committee of the Royal College of Physicians (1945) echoes the same theme, stating: "Child health arouses the students' interest, to a greater degree than any other study except obstetrics, in measures for the maintenance of good health as opposed to the recognition of signs of disease. Disease processes are seen in their early stages and the influence of environmental factors in the genesis of diseases is clearly displayed." Thus was defined the attitude that has influenced the development of post-war teaching in the subject.

While to those who have an interest in children and their development, whether it be through their profession or more simply through the experience of raising a family, such an attitude may seem one of obvious truth, nevertheless in the organization of our curriculum its acceptance has not been a simple matter.

Instead of "Diseases of Children" we now call the subject in our curriculum "Pædiatrics", a word which means the whole study and care of children in health and in disease. For convenience we speak of clinical pædiatrics and social pædiatrics and, at the risk perhaps of oversimplification, these may be described respectively (and certainly from the students' point of view) as what happens in hospitals and what is done for children elsewhere. Essential to the understanding of either is a knowledge of the normal standards of growth and development, both physical and mental, and some knowledge of the psychology of childhood.

In the arrangement of a medical curriculum there is always too much instruction to be fitted into a limited time, and the limited time available is subject to a further restriction in that to a large extent the progress of instruction must follow an ordered sequence and depends, especially in the later years, on the progress of the student's experience and the maturity of his thinking. It is not unnatural that the medical student's first interest is in disease; he knows that he is being trained to cure the sick, and he realizes (quite rightly) that that is what his patients will expect of him. Few students have any knowledge or conception of what life in medical practice is like, or any clear appreciation of the fact that a good doctor does far more than just treat and cure sick people. On the other hand we, his pædiatric teachers, know full well how essential it is that an appreciation of the importance of social and preventive pædiatrics and of the mental as well as the physical health of children should be communicated to our students.

Our task, therefore, in designing the pædiatric part of the medical course is to strike a balance and, to my mind quite rightly, priority of time and effort must be given to clinical pædiatrics. I believe that, in terms of actual teaching time, the allotment to social and preventive pædiatrics and even to the mental health of childhood need be but small; in fact I doubt whether teaching in these subjects should be attempted in a way comparable to that of our instruction in the minutiæ of clinical pædiatrics. Rather our duty is to foster an attitude of mind, an awareness of the importance of the normal as well as the abnormal or handicapped, and a knowledge of what facilities exist for the welfare of both categories and how they should be used.

To a certain extent a knowledge of facilities in the field of social pædiatrics can be taught directly and through observation of the work of the Infant Welfare Service, the School Medical Service, the State Children's Department, institutions for handicapped children and of course preschool centres. But to inculcate a knowledge of their true value and use, and to foster the attitude of mind of which I have just spoken is, I think, a much more subtle business, for the principles involved should be worked into the treatment of other subjects and should illuminate the atmosphere of the training school, becoming part of the *genius loci* absorbed by the students.

This can be done in hospital teaching if we can remember not to look on the sick child as a "case", but to think, and to teach our students to think, of him as an individual, one whom we are seeing divorced from his natural environment of home and family and familiar things. And just because his home environment is for the time being invisible to us we must think the more about it, its possible role in the ætiology of the illness, the effect on the child of being separated from it, the effect of the child's illness on the parents and their subsequent attitude to the child, the suitability of the home for the child to return to in convalescence.

Now it is a singular fact that, although throughout his life in practice almost all a doctor's work will be concerned with visiting and treating people in their homes, his undergraduate training is carried on entirely in the hospital, and this results in a distortion of perspective which is, if possible, most marked in the field of pædiatrics than anywhere else. When at last he enters practice, he will find that a very large part of his work is concerned with children, but much of it will be of a kind of which he has seen very little in hospital. The illnesses will be less severe and less distinct; often it will be hard to decide whether there is really any illness at all; there will be something that the mother thinks is not quite right—a child is not eating, a child is not sleeping, a child is not putting on weight, a child is not behaving as his elder brothers behaved or as the child next door behaves. Is this abnormal? The mother wants to know, so she asks the doctor.

The ability to answer some of these questions can be acquired through a knowledge of the normal and its infinite variability; but to many others, especially in the field of behaviour, the answers will come only as a result of thinking and talking about the problem in all its aspects, and the ability to do that requires not only a knowledge of what environmental factors are important but also the habit of thinking in the right way, which is probably different for every problem.

Perhaps we can now begin to attempt some expression of what we want our graduate to be able to do, at any rate with regard to pædiatrics.

We want him to know the normal and its variations, and we want him to be competent in the diagnosis and management of the patient's illness. In addition he should know and appreciate the psychological and social background; he should have an understanding of the child's reaction to his illness and the parent's reaction to the child's illness; he should be able to form a picture of the child in his home and family circle and to appreciate the effects of separation on the child; if there are problems of behaviour he should be able to advise the parents on their management, and this requires the ability to assess the seriousness of the problem and his own competence to advise. Finally, he must have a knowledge of the various social agencies or services for children and of how they function and how they may be reached.

How can we teach him all this in the relatively few weeks allotted to us, which are barely adequate for the acquisition of the necessary clinical knowledge?

Well, we cannot. But we can, perhaps, find a way of initiating a mode of thinking, and I believe that the cooperation of the Lady Gowrie Centre is helping us to do that.

The students come to the Centre in their sixth or final year, when their understanding is more mature and their medical knowledge generally is acquiring perspective; they come during the non-resident half of the term when their hospital duties are fewer, and they come, in groups of four or five, one morning a week for three consecutive weeks. One group attends on Tuesdays and another on Fridays, so that the Centre receives students on two mornings a week.

At the first attendance the purpose of the "course" is explained to the students by their pædiatrician-supervisor in much the same way as it has been explained here. The work and purpose of the Lady Gowrie Centre are also explained with particular emphasis on the fact that, as far as the children are concerned, it is an ordinary kindergarten. It is not a guidance centre or a centre for problem children, and although a few, very few, children have been referred on account of some specific problem, the majority are healthy, normal, pre-school children, coming from a variety of homes. The importance of the pre-school-age period in both mental and physical development is stressed, and here, therefore, is an opportunity to find out the similarities and differences that exist among 100 normal pre-school children. To give them a focusing point for their interest, each student is allotted a particular child to befriend and study. The progression of the course which will culminate in a group discussion on the children studied is explained, and then the working of the Centre is demonstrated by its director (who has been present throughout the introductory talk) and each student is introduced to the child he will be observing and to the kindergarten teacher in charge of its group.

The children allotted have been selected with considerable care by the director. In every case the parents have signified their willingness to participate, and the children are chosen so as to afford, for the purpose of discussion, an interesting cross-section of age groups and environments. Possibly one or two may show deviations of behaviour of varying seriousness; there may be an only child to contrast with one of a large family; there may be some living in flats or rooms while others live in houses; often the child of New Australian parents is included.

The students spend the rest of the morning at the Centre and before leaving them the pædiatrician-supervisor spends a short time with each, discussing various general and particular points in the observation period now beginning.

By the end of their second morning the students are beginning to realize that to understand the child they must know something of his home and family, so the opportunity is taken to interpolate at this stage some explanation of the technique of the home visit, as well as to arrange its timing. Not unnaturally many of the students view this visit with some apprehension, so it is again explained that the parents are willing and interested participants and that a member of the Centre's staff will accompany them to effect an introduction. Also it has been found to be desirable and in the long run to increase the value of the experience to explain quite carefully and reasonably the type of information that they should seek by observation and interrogation.

The home visit is made between the second and third attendances at the Centre, and the third morning is devoted to a group discussion of the reports submitted. These sessions are attended not only by the pædiatrician-supervisor who guides the discussion but also by the director of the Centre, and often by the kindergarten teacher in charge of the child concerned, both of whom take part.

The ability of the students to participate in these discussions varies according to their own personalities and to the experience they have had of group discussion, which to date appears to have been regrettably small; but it has been uncommon to end a session with a feeling of failure, and it has been found that while a study of four children is ideal, the occasional increase of the groups to five, owing to pressure of numbers, means that on the whole too little of the time available can be devoted to the consideration of each child and to the many interesting and relevant ramifications of the discussion.

Those who are accustomed to working with children will appreciate what a fascinating and stimulating exercise it can be to be shown a child about whom we know absolutely nothing and who neither knows nor cares anything about us, and to employ our powers of observation and understanding in trying to find out as much as we can about him as a person. But the students do not know this, and one of the most rewarding aspects of the experiment is to see how their interest is captured and then grows. Many of them, in fact I think most of them, wonder why they are being taken away from the important business of the wards and out-patient department, and some show clearly that they regard it as a waste of time. Yet by the time they reach their last morning and present their reports something has happened, and some of the most sceptical students have produced reports that show real insight and understanding and have led to discussions that one feels sorry to close.

The general excellence of the students' reports has been both a surprise and an encouragement to me. I do not think they could be so good if the students were not interested, and if they are interested then the experience must be of value. I make that observation because the ultimate value or success of the experiment is hard to assess at present. Its true effects will not really operate until the students enter practice, by which time the origin of any beneficial effects will be largely forgotten. However, I hope that this short course may initiate habits of thinking and of approach that will be of benefit to both the doctor and his patients.

That is what I hope will happen. What I know has happened is that by being able to use the facilities of the Lady Gowrie Centre we have been enabled to make the students think; we have aroused their interest through the sheer fascination of human relationships, and so, I believe, we have achieved something far more surely and with less sacrifice of the jealously watched clinical time than we could have done through any attempt at formal instruction.

Dr. Clements, in his report on similar work in Sydney, has expressed some doubt as to the validity of the belief that the experiences gained during such a course as this will be enough to start a chain of thinking in the students in the desired direction. For the time being, however, shortage of teaching staff precludes much alteration in our programme to incorporate some of his admirable suggestions. Indeed this factor has been a major one throughout, as I am sure that to have any hope of convincing the students that there is no trickery, and that there really is or will be some relationship between what they see and do at the Centre and what they see and do at the hospitals, it is necessary for the scheme to be unfolded to them by someone whom they also see and know in the field of clinical pædiatrics. The conducting of 16 "courses" in a year can be a wearisome task for a single supervisor, particularly if he aims to keep freshness and sincerity in his introductory sessions and to give the concentration necessary for good group discussions. There can be no doubt that the value and quality of the students' responses were improved when, at different times during the five-year period, concurrent series of informal discussions were arranged on various aspects of personality development, the genesis of behaviour disorders, and themes such as adoption. However, the pressure of other commitments in the teaching programme made their regular inclusion impossible.

Nevertheless, it is intended that the methods that the "Lady Gowrie Experiment" have proved to be workable will be extended in 1958, to cover observation and participation leading to group discussions in other fields of work among both normal and handicapped children.

Acknowledgements.

I would like to express my thanks for the unfailing interest and help given by the director and staff of the Lady Gowrie Centre and also to all those parents who have given our students the wonderful privilege of going to visit them and their families in their homes. I hope that this paper may produce a wider realization of how far-reaching may be the results of their interest and kindness.

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CLEMENTS, F. W. (1957), "A Course in Social Pædiatrics to Medical Undergraduates", M. J. AUSTRALIA, 2: 449.

CURRENT VIEWS ON THE MANAGEMENT OF OSTEO-ARTHRITIS OF THE HIP.[1]

By PETER F. WILLIAMS, F.R.A.C.S.,
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OVER the last five years medical literature, and particularly the medical Press, have given the impression that tremendous strides are being made in the treatment of the osteo-arthritic hip. Many new drugs and many new operations utilizing ingenious devices are described. The very multiplicity of the available cures must make the casual observer wonder about their individual value. We may well pause and ask whether all that is new is good, and what of the old, and how best can we advise a given patient to rid him of his pain. It is hoped in this short paper to clarify the present position and to describe what may be regarded as current practice.

The pathology of the arthritic hip is well known, though ill understood. Reduced to the simplest terms it is merely a joint which is worn out to a greater or lesser degree. As time passes the degenerative changes advance, causing progressive stiffness and incapacity until only a painful rock of movement is left. However, it is well to remember that, at least in the early stages, the disease is subject to exacerbation and remission, so what may appear a hopeless situation today may be a much simpler problem in several months' time. As the actual source of the pain remains unknown, most of our methods of treatment must be regarded as empirical.

Conservative Treatment.

The conservative methods of treatment may be conveniently discussed under four descriptive headings.

Methods Aimed at Diminishing the Work of the Hip.

Foremost amongst these is reduction in weight, for most of the patients with this disability are obese—a condition which follows naturally on their enforced inactivity. The loss of several stone often has a remarkable effect on the severity of the pain. If an active occupation is proving too much, a change to a sit-down job should be recommended, and finally, the provision of a walking stick is so simple and obvious that it is often forgotten.

Measures Designed to Limit the Range of Movement.

Many of these hips retain for a long time a middle range which is relatively painless. When an adduction deformity has caused apparent shortening, a suitable cork raise on the shoe will often restrict movement to the painless range. Our surgical forefathers had great faith in the flannel spica bandage, which restricted movement and provided warmth; although one hesitates to advise anything quite so mundane today, some of our own grandfathers still wear these and cannot be parted from them.

Placebos.

Under this heading we have to include the analgesic aspirin, but not to decry it, for it surely is one of our most faithful allies and the mainstay of conservative treatment. Aspirin can be given in large dosage for almost unlimited periods, and it provides a cheap and effective method for the control of arthritic pain.

Physiotherapy, by which in this regard is meant heat, massage and exercises, must be regarded as a greatly overdone form of treatment and in some cases a harmful one. There is no evidence (theoretical or otherwise) to show that heat of any wave-length or emitted from any known apparatus or lamp is any more effective than a domestic hot-water bottle in the relief of arthritic pain. Massage is merely a pleasant counter-irritant and has no real place in the management of the mechanically deranged hip. Exercises are, of course, contraindicated for a condition which only rest alleviates. It may be argued that physiotherapy has an important place in the psychological management of the patient, but this cannot be upheld, for the effort of travelling to and from the clinic often does more harm than the few hours of relief obtained.

Empirical Methods of Conservative Treatment.

Under this heading have been grouped a number of measures mostly of doubtful value. The one exception is the drug "Butazolidin". Provided the well-known contra-indications are observed, this drug is always worth a trial, for, while some may give no response, many achieve remarkable relief from pain. After the initial few weeks of treatment it may be necessary to continue the drug in very reduced dosage for some time, although in some patients the effect continues for a variable period after withdrawal.

Deep X-ray therapy, as may be expected on theoretical grounds, is quite useless in practice.

The intraarticular injections of lactic acid, procaine and hydrocortisone, or combinations of these, will occasionally give some relief for a few days. The effect is never worth the unpleasant experience, and the risk of septic arthritis is ever present, especially when carried out as an office procedure.

Manipulation is occasionally useful in the early case, when movement is painfully restricted in only one direction, but should never be employed with advanced disease.

Perhaps the most valuable of all methods of treatment is a simple explanation to these patients of their trouble. Having learnt that they have arthritis, all patients conjure up a picture of themselves gnarled and knotted like an old mallee root and spending their remaining years chained to a wheel-chair. It must be impressed upon them that this is merely a process of wear and tear, not a spreading disease, and in no way related to rheumatoid disease. Relieved of this burden, it is surprising how many patients find their pain easier and are prepared to carry on using a few simple remedies.

Operative Treatment.

It has always been stated that the indication for operation was intolerable disability, and this is still substantially true. The man who is still able to play a round of golf is no candidate for surgery. However, in patients who develop painful arthritis under the age of 30 years, operation should be advised much earlier, for their disability can only be progressive and a better result can be expected from surgical intervention the earlier it is performed. Many operations have been tried over the years, but now only three types remain in use—arthrodesis, arthroplasty and osteotomy.

Arthrodesis.

In unilateral disease by far the most successful of all operative procedures is arthrodesis, for it alone can provide a completely painless, stable and lasting result. Most of the criticisms of arthrodesis are quite untrue. It is not difficult to secure, and it does not cause low back pain and great restriction of activity. In a recent, masterly paper, Watson-Jones has shown how the activities of his patients have included such sports as mountain climbing and skiing. The greatest difficulty is to convince patients to accept

[1] Read at a meeting of the Royal Australasian College of Surgeons, August, 1957.

a method of treatment which will result in stiffening, and in this regard explanation is a poor substitute for their meeting another who has undergone successful arthrodesis. Then all doubts vanish.

There is no standard technique for arthrodesis applicable to all hips, and the operation should be individually designed for each. Certain operations, however, have particular merit. The ischio-femoral fusion of Brittain is ideal for the hip which is stiff in adduction, but it has the disadvantage that it is difficult to perform and involves mutilation of the tibia to obtain the cortical graft.

Recent experience here with an operation combining an ilio-femoral inlay with subtrochanteric osteotomy suggests that the procedure has considerable merit and is applicable to most types of disease. It has the advantages of being quick and easy to perform, while deformity can be corrected without disturbing the intrinsic stability of the hip joint.

If the femoral head is virtually destroyed or congenitally dislocated the technical problems are much greater, but success can be most readily achieved by removing the head and neck and inlaying the full length of the trochanteric region into the side of the pelvis.

Various forms of internal fixation may be used in conjunction with any of these methods or with intraarticular arthrodesis, but whether used or not all methods require the external support of a plaster spica for at least four months. This is the most arduous part of the treatment for the patient, and it is largely for this reason that arthrodesis should be restricted to patients under 50 years of age. In this group it is possible to offer a patient a hip which is painless, stable and productive of a gait which is often difficult to fault. Tennis, golf and motoring present no problems, and, above all, the result will not deteriorate as time goes on.

Arthroplasty.

Elderly patients and those with bilateral disease at all ages are unsuitable for arthrodesis, and we must consider methods which retain or regain movement while relieving pain.

Since the first attempts at arthroplasty over 130 years ago, surgeons have exercised their ingenuity to obtain a painless, mobile and stable hip. Even today this triad cannot always be obtained. Until about 1950 the interposition arthroplasty of Smith-Petersen using a vitallium mould was a common usage, but its well-established position was usurped by the introduction of the new principle of replacement arthroplasty. Judet opened this era using an acrylic prosthesis replacing the arthritic head, and the initial results of this operation were so incredibly good that surgeons all over the world were soon practising it with abandon. The bonanza was short-lived, for many of those patients returned with their prostheses either worn, broken or loose in the bone and some form of salvage surgery became necessary. Prostheses similar in design to the Judet model soon appeared in stainless steel and vitallium, and when these failed massive appliances such as the Moore prosthesis, using a long intramedullary peg, were brought into use.

A high proportion of all these operations eventually fails, and it is likely that they will continue to do so until a solution is found to the problem of making metal unite to bone. In the present stage of evolution, prosthetic arthroplasty should not be advised for the treatment of the osteo-arthritic hip.

For most surgeons the vitallium mould arthroplasty remains the operation of choice. However, it must be admitted that even in the most expert hands the result is somewhat unpredictable, but it is equally true that if an arthroplasty is badly performed the result is always bad and often disastrous.

The patients selected for operation must be able and anxious to cooperate in the tedious after-care which is necessary, and in this regard a capable physiotherapist is an indispensable part of the surgical team. Improvement in movement and stability continues for a very long time, and the final assessment cannot be made until several years have passed.

In the final analysis very few patients fail to gain a result which is satisfactory to both themselves and their surgeon.

Osteotomy.

Osteotomy enjoyed a long period of popularity twenty or more years ago, but except in the hands of a few enthusiasts has suffered a gradual decline. Now there are indications of a minor revival, and it is possible that the advantages conferred by internal fixation, eliminating the need for plaster immobilization, will produce a new osteotomy era.

Although countless operations have been described, all depend on the principles of altering the line of weight transmission and providing a fresh part of the capital articular cartilage for weight-bearing. These principles are embodied in the osteotomy operations of McMurray and Schanz. While there is no doubt that excellent results can be obtained by the McMurray operation, most would agree that it is neither as easy to perform nor as certain in results as McMurray would have had us believe. Moreover, if we adhere to the indications laid down by McMurray, the numbers available for this procedure are very limited. Many of these criticisms apply equally well to the Schanz operation, but my own experience here is so restricted that I do not feel competent to pass judgement. It can be said, however, that in carefully selected cases osteotomy has much to offer.

Conclusion.

In conclusion, to summarize the present status of treatment, we can say that most of what is new is not good, and we must place our faith in weight reduction, aspirin and the walking stick.

When the indications arise, modern surgical techniques can offer a very reasonable expectation of permanent relief.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Fractures and Other Injuries", edited by Edwin F. Cave, M.D.; 1958. Chicago: The Year Book Publishers, Inc. 10" × 7", pp. 884, with 611 illustrations. Price: $28.00.

The contributors are members of the Fracture Clinic of the Massachusetts General Hospital and of the Faculty of the Harvard Medical School.

"The Reticulo-Endothelial System in Growth and Tumour Formation", by Roger Wyburn-Mason, M.A., M.D., M.R.C.P.; 1958. London: Henry Kimpton. 9½" × 7", pp. 208, with 79 illustrations. Price: 42s. (English).

A report of original investigations.

"Gestation", Transactions of the Fourth Conference, March 5, 6 and 7, Princeton, N.J.; edited by Claude A. Villee, Ph.D.; 1958. New York: Sponsored by The Josiah Macy, Jr. Foundation. 9" × 6", pp. 216, with 63 illustrations. Price: $4.50.

Contains papers and discussions on the physiology of fœtal fluids, the origin of amniotic fluid, the morphological manifestations of uptake of materials by the yolk-sac of the pregnant rabbit and the development of fœtal immunity.

"Action of Radiation on Tissues: An Introduction to Radiotherapy", by A. Lacassagne and G. Gricouroff; translated by Clarence C. Lushbaugh, M.D., and Gretchen R. Riese, M.S.; 1958. 8½" × 5", pp. 208, with 17 illustrations. Price: $6.25.

A book for "young physicians preparing for the practice of a specialty demanding radiobiologic knowledge".

"The Year Book of Endocrinology (1957-1958 Year Book Series)", edited by Gilbert S. Gordan, M.D., Ph.D., F.A.C.P.; 1958. 7½" × 5", pp. 384, with illustrations. Price: $7.50.

One of the Practical Medicine Series of Year Books.

The Medical Journal of Australia

SATURDAY, AUGUST 30, 1958.

SYSTEMIC LUPUS ERYTHEMATOSUS.

THE syndrome of systemic lupus erythematosus is assuming increasing importance in the day-to-day practice of medicine. Although described as early as 1872, it has been regarded as a rarity and the concern only of the specialist in internal medicine until the last few years; there can be no doubt now that it is very much a matter for the general practitioner and the front line of medicine. The reasons for its present significance are twofold. Firstly, it is becoming more common. Whether this is because of increasing awareness or increasing incidence is difficult to say. It is tempting to attribute the frequency, in part at least, to the widespread use of sensitizing drugs. However, Ian R. Mackay (see page 279) surveyed 66 cases observed in the Royal Melbourne Hospital and, in spite of his interest in auto-immune mechanisms, found only two in which the taking of drugs appeared to be significant. Whatever be the cause for the increased numbers now being observed, the important thing is that there are at present in the community many cases capable of diagnosis; and this leads to the second significant matter—the effectiveness of corticosteroid therapy.

The disease, untreated, may lead to an early death or prolonged disability and disease; spontaneous recovery is rare. The reward for diagnosis is high; fever, toxæmia, joint pains, anæmia, rash and neurological symptoms respond dramatically and consistently to treatment. The sense of well-being induced is perhaps exaggerated by the long and painful illness prior to diagnosis. The most worrying lesion, destruction of the small vessels and glomeruli of the kidney, has not responded so favourably, and many have considered that the renal lesion was irreversible.[1] It is heartening therefore that, in some cases at least, Mackay observed in serial renal biopsies, arrest or improvement of the kidney lesion with treatment. Unfortunately those cases showing advanced lesions at the onset continued to progress. The experience of E. L. Dubois,[2] based on clinical observations, was somewhat different. Of 163 patients treated with corticosteroids and, in some cases, with nitrogen mustard, 72 showed evidence of renal disease at the onset or during treatment. Of these, in 32 the renal lesion appeared to improve, in 19 there was no change, and in 21 there was deterioration. Of the last-mentioned group, 17 were free of renal disease when treatment was commenced, but deteriorated subsequently. Not only then does the favourable response to therapy underline the importance of diagnosis, but the failure of response in the advanced case with renal lesions makes it imperative that diagnosis be not delayed.

The diagnosis is essentially a clinical matter. In the classical case the clue lies in the multiplicity of the symptoms with involvement of several organs. Skin, joints and kidney are most frequently affected. Peripheral vessels, the heart, peripheral nerves, liver, spleen, lymph glands and the formed elements of the blood may all manifest disease. As a background to these local disturbances there is chronic low-grade toxæmia with fever, weight loss and raised erythrocyte sedimentation rate. The practitioner, if he is not to be misled, must be aware of this pleomorphic clinical picture, for it is notoriously misleading, and there is great danger of not seeing the wood for the trees. Faced with the syndrome, the physician must distinguish systemic lupus erythematosus from (i) the septicæmias, particularly subacute bacterial endocarditis, chronic staphylococcal septicæmia, meningococcæmia and brucellosis, (ii) generalized tuberculosis, (iii) the reticuloses and (iv) disseminated carcinoma. Diagnosis usually depends on the clinical picture. While it is much surer if the L.E. phenomenon can be demonstrated in the patient's blood, a negative result does not exclude the condition. The test is simple to perform and is now a routine laboratory procedure. Interpretation, however, is difficult, and differences in the frequency with which the phenomenon is observed are undoubtedly due to differing interpretations of the morphological changes within the affected leucocytes. While the pathogenesis of these changes remains unknown it is unlikely that the differences will be resolved, and clinicians must keep the significance of the test in a proper perspective. Where the clinical picture is suggestive enough to warrant a trial of corticosteroids, the response is usually clear cut and provides further confirmation of the diagnosis.

There is increasing evidence that the pathogenesis of systemic lupus erythematosus is associated with complex auto-antibody production. I. R. Mackay and L. Larkin[1] report the presence of complement-fixing antibodies to human tissues, particularly kidney, in a high proportion of patients with systemic lupus erythematosus. W. Damashek,[2] discussing the hæmatological manifestations, suggests that a positive response to the Coombs test, hæmolysis, thrombocytopenia and neutropenia, a positive Wassermann reaction, circulating anticoagulants and the presence of the L.E. factor are all manifestations of auto-antibodies. He suggests that the site of antigen development may be in the vessels of the menstruating endometrium, thus explaining the frequency of the disease in women in the child-bearing age group.

It is too early to define the natural history of systemic lupus erythematosus under the influence of corticosteroid therapy. Patients whose renal lesion is irreversible die of renal failure or of the complications of hypertension. Irreversible vascular lesions in the brain may also be resistant to treatment and lead to an early death. In these patients the life-span is unaffected, but, under treatment, their toxæmia may be relieved. The drugs have been generally available for six or seven years, and it is apparent that remissions have been induced in more than half the patients adequately treated. In Dubois's series of 163 patients 58 had died and 105 were in remission which had lasted for up to four years after suspension of therapy,

[1] Muehrcke, R. C., Kark, R. M., Pirani, C. L., and Pollak, V. E., "Lupus Nephritis", Baltimore, Williams and Wilkins Company, 1957.
[2] *Ann. Int. Med.*, 1956, 45: 163 (August).

[1] *Australasian Ann. Med.*, 1958, 7: 251 (August).
[2] *Ann. Int. Med.*, 1958, 48: 707 (April).

the duration of which varied from one to twelve months. Relapse may occur, but this is usually shortly after suspending therapy, and a favourable response to a second course can usually be expected. Whether these remissions amount to cures it is too early to say, but, bearing in mind the occasional patient who, in the past, has made a spontaneous recovery, we may reasonably hope that this is indeed the case.

Current Comment.

ADVANCES IN RADIOBIOLOGY.

THE fifth International Conference on Radiobiology was held at Stockholm during August, 1956, and the collected contributions have been published in the same format as the proceedings of the fourth congress.[1] The papers are gathered into several sections, under such headings as "The Primary Clinical Effects of Radiation", "The Biochemical Effects", "Alpha Particle Irradiation of Single Cells", "Modification of Systemic Effects of Irradiation", "Studies of Distribution of Isotopes in Tissues", "Irradiation Effects on the Hæmopoietic System" and "Radiation Genetics". While the scope of the papers is mostly within the realms of the radiobiological research worker, some representative papers are summarized here to indicate the nature of the work presented, for real advances are being made in radiobiology.

Alexander discusses direct and indirect radiochemical energy absorption processes. Absorption of energy within a molecule produces "direct" reactions, while change in a molecule due to oxidation or reduction reactions resulting from ionization of adjacent water molecules is an "indirect" reaction. It has been thought that direct reactions are unlikely to be influenced by change of molecular environment, such as variation in temperature or oxygen tension, whereas indirect reactions would be readily so influenced. Temperature fall decreases indirect reactions by reducing ionic diffusion. Alexander has been able to demonstrate that certain direct reactions can be influenced by these environmental changes.

L. G. Lajtha *et alii* show that doses of radiation of the order of 450*r* inhibit desoxynucleic acid synthesis if delivered to human bone marrow cells *in vitro* before the beginning of DNA synthesis, but do not inhibit it once it has started. These observations suggest the presence of another radiosensitive system in the cells which is connected but not identical with the process of DNA synthesis, and which is sensitive to smaller doses of radiation than DNA synthesis.

R. J. Munson records that Zirkle and Bloom in 1953 used a microbeam of fast protons to determine the relative radiosensitivities of different parts of certain individual cells. Munson has constructed an ingenious apparatus for the irradiation of single cells with single alpha particles from a polonium source. Large bacteria are used and are passed in suspension down a tube of such narrow diameter that one organism almost completely fills the lumen. The organisms pass slowly down the tube, alpha rays reach the organism after travelling down a fine collimating device, an electrical device counts the alpha particles, and a microscope allows observation of the irradiated cells.

Ross Munro has irradiated with alpha rays single chick embryo cells from a tissue culture. He obtained differing results by irradiation of the chromosome region and of the cytoplasm; and showed that different degrees of damage occurred in each region with variation of the dose.

Davis *et alii* have carried out similar single cell irradiation with an alpha ray beam of 1·0μ to 1·5μ in diameter. They have found that the sensitivity of chick tissue culture cells in mitosis increases by a factor of 10 from prophase to metaphase. Irradiation of the spindle produces changes in the cytoplasm, with subsequent irregular cell cleavage and non-separation of the divided chromosomes. After irradiation of the extrachromosomal region away from the spindle, the presence of a radiosensitive structure responsible for the active pulling apart of the two daughter cells was demonstrated. These additional cytoplasmic effects of irradiation are thus recognized.

Hollaender states that mitosis in the grasshopper neuroblast is slowed in the prophase stage of mitosis by as little as 1*r*. Mitosis is slightly accelerated if the cell medium is just hypertonic instead of isotonic saline. The combination of radiation and hypertonic medium allows mitosis to proceed at normal rates—that is to say, the hypertonic saline counteracts the effect of the radiation, but only provided that it is applied within 60 seconds of the application of the radiation. This indicates that the initial chemical reactions are over within one minute, and other secondary changes then occur which cannot be so readily repaired. Other varieties of cells react much more slowly, and possibly in these the initial radiation damage could still be counteracted after a time considerably longer than one minute. The initial damage may well be a change in concentration gradients of different solutions in the cell or changes in cell membrane permeability. Changes in nucleic acid synthesis or other changes which are now regarded as primary radiation effects may well be secondary effects, taking considerable time to occur, and so may be subject to external influence. Hollaender believes that mutations in bacteria and possibly in other cells are not direct genetic effects. After radiation is absorbed, some physico-chemical protectors can prevent the occurrence of genetic changes and so reverse the radiation damage. Probably a whole series of chemical steps are involved before a mutation occurs.

J. A. Cohen *et alii* describe the protection which can be given to mammals against the effects of whole body irradiation by chemical means and by bone marrow therapy. Chemical protective substances must be administered prior to the irradiation, cysteamine being the best known protector. Many new protectors have been recently found; histamine, for example, has considerable protective power. Interaction of the protectors with the radiation-produced water-derived radicals which are called "mediators" does not give full explanation of their action. Protectors may act on the mediator or the radiosensitive site. It is likely that some protectors have the specific pharmacological action of lowering oxygen tension *in vivo*. Sensitizers are the opposite of protectors and enhance the radiation effect; for example, increase of oxygen tension is known to act in this fashion, probably by reacting with the mediators producing more powerful destructive agents. Thus reducing agents at the radiosensitive site are in general protectors; oxidizing agents are sensitizers. Intravenous administration of bone marrow tissue suspension to restore radiation-damaged marrow is effective only after the exposure. The theory of action by way of a humoral factor of unknown nature has been dropped, as viable marrow cells are needed to repopulate the damaged marrow stroma until such time as the animal's own marrow can regenerate. The graft cells may be homologous or heterologous—for example, rat cells to mouse. Heterologous grafts will take only after massive doses, causing complete destruction of the marrow; administration of heterologous cells does not give protection when the doses are less than lethal, that is, while any immune reaction response remains. Rat marrow cells have been used to protect irradiated mice, and the rat cells can be followed for long periods on account of their morphological differences. There appear to be severe immunological reactions occurring at the stage of host marrow regeneration when the heterologous grafted marrow is destroyed.

Pihl and Eldjarn state that protectors of the cysteamine group do not act primarily by inactivating radiation-produced mediators, nor do they act by reducing the intracellular oxygen tension. They do interact with biological SH groups to form mixed disulphides, in which state the

[1] "Advances in Radiobiology: Proceedings of the Fifth International Conference on Radiobiology Held in Stockholm on 15th-19th August, 1956", edited by George Carl de Hevesy, Arne Gunnar Forssberg and John D. Abbatt; 1957. Edinburgh and London: Oliver and Boyd. 9½" × 6", pp. 520, with many illustrations. Price: 77s. 6d. (English).

molecules are less sensitive to both the direct and the indirect effects of radiation. The assumption is made that free moderator radicals attack one of the sulphur atoms; and if the cysteamine sulphur is oxidized, then the original SH group is reformed—in other words, no effective damage has occurred. It is also suggested that the mixed disulphide state offers protection against direct hits. In an ionized molecule the charge can migrate along the carbon chain; if fission occurs at the susceptible mixed disulphide bond, non-destructive energy dissipation will have taken place and the original molecule will remain.

E. L. Simms *et alii* state that lead shielding of the spleen or subsequent injection of spleen or embryo cell suspensions saves the lives of irradiated mice given otherwise supralethal doses. After such doses the immune response is destroyed, presumably with destruction of the reticuloendothelial system. If an antigen is injected during this phase, no antibodies are produced, and apparently a tolerance is produced, as at no later stage will the animal produce antibodies to that particular antigen. These circumstances make possible the saving of the irradiated animal's life by the use of heterologous marrow cell grafts, but protection is not long-lasting; it saves the animal during the acute phase, but does not prevent delayed death when the animal is again capable of showing immune response reactions.

Curtis and Healey, after conducting experiments on the aging of irradiated mice, show that mice which recover after a severe toxic stress have a normal life expectancy thereafter, but that mice receiving a radiation stress of comparable severity subsequently have a lower life expectancy. Young adult animals receiving radiation subsequently show premature aging.

Abbatt and Helen Farran have demonstrated the presence of iodinated tyrosins in the sera of certain thyrotoxic patients. The majority (85% to 90%) of such patients become euthyroid after administration of a dose of radioiodine giving between 8000 and 15,000 rads to the thyroid. A small proportion of patients need much higher dosage and become euthyroid only after multiple treatments. It is in the serum of patients in this "resistant" group that the presence of the mono-iodotyrosins and di-iodotyrosins has been demonstrated. These are normal intermediate products in the biosynthesis of thyroxine. It is suggested that this finding is an indication of radio-resistance.

Lamerton and Belcher discuss take-up of radioactive iron after whole body irradiation of rats. Practically all the iron uptake is by marrow, though reticulocytes in circulation take up small amounts directly. After whole body irradiation, uptake is greatly reduced, owing firstly to delay of maturation of normoblasts and secondly to delay in release of reticulocytes into the circulation.

E. V. Hulse has carried out a quantitative assessment of the damage to each type of bone marrow cell following whole body radiation of rats, and has shown that the sensitivity of the various cells of the erythroid series is inversely proportional to the degree of maturation. In other words, he has found that the late and intermediate normoblasts are extremely radiosensitive; a dose of 50*r* within 24 hours reduced them to half their normal numbers.

L. A. Elson has previously shown that the nitrogen mustards cause predominantly the "lymphoid" portion of the destructive effect of radiation on the marrow, while "Myleran" produces damage akin to the "myeloid" portion of the radiation effect. Both drugs together give an effect almost equivalent to radiation. Further work has shown that, when the two drugs are administered together, the effect of the "Myleran" is not as great as if the same quantity of "Myleran" had been administered alone. The mustard appears to give some protective effect, which is almost certainly due to the intense bone marrow regeneration which follows its initial depressive action. The stimulation involves particularly the neutrophils and the platelets.

A number of papers on radiation genetics comprise the final section of this most interesting collection of papers. The book has been produced in first rate style; the format, printing and reproduction of diagrams and photographic material are greatly to the credit of the printers and publishers.

THE COMMON COLD.

A PARTICULARLY interesting piece of general practitioner research is that described by R. E. Hope Simpson in a discussion on the common cold before the Section of General Practice of the Royal Society of Medicine.[1] Simpson points out that evidence from other investigations shows clearly that the common cold has quite a different epidemiological picture from those of other diseases, in that the secular curves of morbidity may be the same all over a country and the seasonal tide is relatively constant. There is a broad parallelism between the average air temperature for each month over 35 years inverted and the respiratory disease curve. This parallelism with the temperature does not hold for cases of sore throat.

In order to study this relationship more closely 350 volunteers, in about 80 families, were enrolled, and they kept a daily record of certain respiratory symptoms. The daily morbidity was recorded in case colds were not episodes of illness like measles. It is pointed out that the author's figures for 1954 and 1955 suggest that persons in the environment of his subjects suffer from a cold for 700 weeks of their lives—seventy days *per annum*. The secular curve of morbidity from colds among the volunteers was compared on a comparable scale with the inversion of the temperature taken a foot deep in the earth to cut out brief erratic changes in the air temperature. The concordance between the curves over a period of two years is remarkable. It seems that the temperature has only to drop 1° F. for the morbidity from colds to rise by about 1%. It is possible that the drop in seasonal temperature itself causes the increased morbidity, but this seems unlikely. Most of us spend much of our time, especially in winter, in temperatures far removed from those of the outside air. Simpson suspected that the humidity of the indoor atmosphere, or more correctly, the evaporating power or dryness of the air, might be the important factor. It was found that the difference in humidity between the atmosphere indoors and that outdoors gave a curve over the year that approximated very closely to that of the morbidity from colds—that is, the increase of colds and the increase of the dryness due to artificial heating run closely parallel. An apparently related observation has been made in Denmark, when a positive pressure anæsthetic apparatus was used in cases of bulbar palsy occurring during an outbreak of poliomyelitis; unless the gases were fully saturated with water, respiratory infections developed. One must suppose that the humidifying apparatus of the nose and throat is designed to meet the exigencies of the "natural" variations in atmospheric humidity; and when the air becomes too dry for the seasonal conditions, the mucous membrane becomes dried and the mucus thickened. Bacteria and virus could then obtain a foothold, whereas under natural conditions these are largely swept out by the ciliary activity. Opening the windows of a room was found not to correct the condition.

That humidity and not cold is the important factor is further suggested by an observation by Simpson at a cheese factory in Wales. A room, recently put into use, was kept at a temperature of 57° F. and a humidity of 80%. Over a period of twelve months the morbidity from colds of the workers in this room was less than half that of the other workers of the factory. It may well be that the old-fashioned custom of putting a dish of water in front of the fire in a room is useful. One further comment that should be made is that the results described by Simpson were obtained in England, where the outside air is nearly always moist; so it is interesting to compare these results with those of the investigation described by Hans Pacy in a recent issue of this Journal,[2] and to note that the conclusions independently reached were in both cases essentially similar.

[1] *Proc. Roy. Soc. Med.*, 1958, 51: 267 (April).
[2] M. J. AUSTRALIA, 1958, 2: 194 (August 9).

Abstracts from Medical Literature.

PATHOLOGY.

Death after Cardiac Surgery.

E. K. KOIWAI AND G. A. LAUBO (*Am. J. Clin. Path.*, February, 1958) have analysed the cause of death in 271 patients whose death was related to cardiac surgery. In many, the immediate cause of death was difficult to designate because such events as cardiac arrest or ventricular fibrillation leave no recognizable signs for the pathologist to discover at autopsy. Eighty-four (31%) of the patients were thought to have died from cardiac failure. In the remaining cases hæmorrhage was the most frequent pathological finding, followed by embolism and uræmia. Uræmia was due to tubular necrosis following hypotensive shock in most cases, but in some was due to embolism. The types of heart disease and the type of operation are also tabulated.

Section of Pituitary Stalk in Goats.

P. M. DANIEL AND M. M. L. PRICHARD (*Am. J. Path.*, May-June, 1958) have found that the vascular arrangement of the goat's pituitary gland is similar to that of humans. They, therefore, tried the effect of sectioning the pituitary stalk in view of the possibility that this may replace hypophysectomy in the treatment of certain cancers. After the stalk was cut, a wax plate was inserted between the cut ends. This caused a massive infarction of the anterior pituitary lobe, though certain areas of this lobe regularly survived and the cells multiplied. There was also some degeneration of the pars nervosa. The pars intermedia, however, underwent hypertrophy. Marked changes in other organs, particularly the endocrine glands, followed these procedures. In three animals the stalk was not actually cut, but was bent aside by the wax plate. In these, a unilateral infarct occurred in the anterior lobe, and changes in the other portions were similar to those seen after section of the stalk. The results of these experiments in relation to post-partum pituitary necrosis and therapeutic ablation are discussed.

Bronchiolar Emphysema.

F. T. SIEBERT AND E. R. FISHER (*Am. J. Path.*, November-December, 1957) have presented the morphological and clinical features of two examples of emphysema of an unusual type. The authors could find only 10 cases in the world literature which were sufficiently documented to be considered examples of this lesion, which they prefer to designate bronchiolar emphysema rather than cystic or muscular cirrhosis of the lungs. The complex pathogenesis of bronchiolar emphysema is attributed to respiratory hypoplasia and to certain anatomical and pathophysiological factors leading to the formation of emphysematous cysts derived from respiratory bronchioles and their appendages. The presence of respiratory hypoplasia results in thickness of the septa and elastic tissue of the distal septa, so that they can withstand considerable pressure, resulting in less alveolar dilatation than in vesicular emphysema; dilatation of the respiratory bronchioles occurs instead. The authors suggest that the disorder is more common than would appear from the published cases, and in all probability there are cases masquerading as congenital cystic disease, honeycomb lungs or myomatosis.

Experimental Nephrotic Syndrome.

E. R. FISHER AND J. GRUHN (*Arch. Path.*, May, 1958) used an aminonucleoside of the antibiotic "Puromycin" to produce the nephrotic syndrome in rats. The syndrome is characterized by the development of proteinuria, hypoproteinæmia, œdema and ascites and hypercholesterolæmia. The severity of the disorder depended upon the dosage employed. There were no demonstrable glomerular lesions (using the light microscope) and their investigations excluded the tubules as the source of proteinuria. Complete clinical, biochemical and morphological recovery was noted in four to five weeks in surviving animals. The authors compare the nephrotic syndrome induced in this manner with that produced by anti-rat kidney serum.

Adenoma of Lung.

S. KAY (*Arch. Path.*, April, 1958) has made a study of two examples of peripheral adenoma of the lung. In this paper a peripheral adenoma is one which cannot be visualized with the bronchoscope. In each case there were multiple small masses of tumour which had the typical appearances of adenomata. In one case there was metastasis to regional nodes. The author thinks that these examples bridge the gap between adenoma on the one hand and benign tumourlets on the other.

Composition of L.E. Bodies.

G. C. GODMAN, A. D. DEITCH AND P. KLEMPERER (*Am. J. Path.*, January-February, 1958) have carried out further investigations upon the composition of L.E. bodies formed *in vitro* and hæmatoxylin bodies formed in tissues. Their conclusions are that the formation of L.E. bodies entails an increase in nuclear protein, but at the same time histones normally linked to DNA are diminished. The nucleoprotein mass formed in the process undergoes further change in the tissue to become hæmatoxylin bodies. The authors think that loss of D.N.A. then results in fibrinoid material.

Polypi of the Colon.

G. F. STARR (*Am. J. Clin. Path.*, March, 1958) has made a study of the changes in individual adenomatous polypi and polypoid carcinomata of the large intestine, illustrating the apparent transition from benign to malignant polypi. The author stresses that adequate biopsy material, including the entire polypus, or at least tissue from the periphery and base of the lesion, must be submitted to the pathologist in order to obtain an accurate diagnosis. Carcinoma-in-situ and lack of uniform structure in the polypi are recognized as hazards in the diagnosis of biopsy material. The histological demonstration of the presence or absence of invasion of the stalk is of prime importance in the selection of patients for surgical treatment. Many pitfalls occur in such demonstration. It is assumed that unequivocal invasion of the stalk of a polypus by malignant cells is necessary before metastasis occurs. A lesion is illustrated which demonstrates that a large portion of the base of the stalk of a polypoid carcinoma may not exhibit invasion even in the presence of metastases. The necessity is emphasized for close collaboration between the pathologist and the surgeon for the proper care of each patient.

Cardiac Hypertrophy in Anæmia.

S. H. PAPLANUS, M. J. ZBAR AND J. W. HAYS (*Am. J. Path.*, January-February, 1958) studied the effect of uncomplicated severe anæmia on the size of the heart in dogs by frequent repeated venesections. After five months the animals were killed and their hearts examined. A significant hypertrophy was found in the hearts of the anæmic animals. The possibility that œdema was responsible for the difference in weights between the heart of the anæmic animals and those of the controls was eliminated by the finding that the water content of the heart muscle did not differ significantly in the two groups. The hypertrophy was found to affect both sides of the heart and it was accompanied also by dilatation of both ventricles.

Experimental Biliary Cirrhosis.

G. R. CAMERON AND S. M. HASAN (*J. Path. Bact.*, April, 1958) have made a study of experimental biliary cirrhosis by observing the changes which occur in the rat's liver when the common bile duct is ligated. They came to the conclusion that fibrosis of a degree sufficient to be designated cirrhosis occurs only when infection of the biliary tract supervenes. They were unable to correlate the ordinary tests of hepatic function with the processes occurring in the liver.

Finger Clubbing.

F. C. BIGLER (*Am. J. Path.*, March-April, 1958) has reviewed previous descriptions of the morphological changes in finger clubbing and found them inadequate. He studied 10 examples of clubbing found at autopsy, and used as controls 29 subjects without clubbing. The alteration in shape of the clubbed digit is due to œdema of the nailbed, which is normally less than 2·0 millimetres in thickness. Œdematous thickening of the periosteum is also present. Eosinophils and perivascular collections of lymphocytes were often seen. In one case of chronic clubbing, the œdema had been replaced by collagenous thickening. No alterations in bone were seen in clubbing.

Nasopharyngeal Angiofibroma.

E. M. HUBBARD (*Arch. Path.*, February, 1958) has collected 26 examples of nasopharyngeal angiofibroma. He describes the clinical and pathological features, emphasizing the tendency to recurrence and pointing out that these tumours are not absolutely confined to adolescence. One example persisted and recurred in a

man aged 50 years. Eleven of the 26 had one to five recurrences. No malignant transformation was observed by the author.

Trophoblastic Emboli.

W. W. PARK (*J. Path. Bact.*, April, 1958) introduced emulsions of homologous and autologous placental tissue into the veins of mice, some of which were treated with hormonal preparations, and a study was made of the reactions of pulmonary vessels to these emboli. The particles behaved as unusually bland emboli, arousing little or no inflammatory response in or around the vessel walls. The smallest particles were removed by simple lysis within four or five days. Larger particles became covered by endothelium and were gradually incorporated into the vessel wall. These also gradually disappeared, unaccompanied by inflammatory reaction, causing no permanent structural changes in the vessel wall. No lesions of atheromatous type were seen in the vessels; nor did thrombosis occur in the region of the emboli. No instance of continued growth of trophoblast was found in either normal or hormone-treated animals. Apparent continued growth of decidual tissue was seen in the lungs of two animals. Embolic placental tissue appeared to be removed from the lungs with equal efficiency by pregnant and by non-pregnant animals.

THERAPEUTICS.

A New Anthelmintic.

J. C. SWARTZELDEN *et alii* (*J.A.M.A.*, December 21, 1957) report on dithiazanine as an effective broad-spectrum anthelmintic. Of 164 patients with trichuriasis, 97% were cured in five days by 200 milligrammes given three times a day. Out of 42 patients with ascariasis who were given the same dose, 97% showed a reduction in egg count, and 28 patients showed complete elimination of the infection. Strongyloids were eliminated in 16 out of 18 patients treated for five to 21 days. Thirty-five boys treated for enterobiasis who were treated with 100 milligrammes three times a day were all cured. Hookworm egg counts were also reduced by the same treatments. For treatment of hookworm in particular, best results were obtained by giving small doses of tetrachlorethylene with dithiazanine.

Angina Pectoris.

R. FIFE, G. HOWITT AND J. STEVENSON (*Scottish Med. J.*, January, 1958) from Glasgow report a controlled clinical trial of drugs designed to prevent cardiac pain of effort in 75 patients, of whom 11 had hypertension, and all but five had electrocardiographic evidence of myocardial damage in addition to a typical clinical story. The trial involved two placebos, penta-erythritol tetranitrate and aminophylline, at two-dose levels, as tablets taken regularly at meal times. No superiority over placebos could be found with the preparations in use, although dosage was in excess of that recommended. Placebos produced as many side-effects as the drugs, and no difference in response could be detected whether the preparations were taken before or after meals.

Action of Pitressin.

C. D. DE LANGEN (*Acta med. scandinav.*, vol. 160, fasc. 4, 1958) has studied the effect of pitressin upon the peripheral circulation. The changes in the peripheral circulation in beriberi are generally considered to result from the opening of arterio-venous shunts which decrease the flow of blood through the capillaries. Pitressin closes these shunts, and it is likely that this action is responsible for the pressor activity of the hormone. The author suggests that the antidiuretic action of pitressin may also reside in its capacity to close arterio-venous shunts in the kidney, thereby causing the blood to find its way to the efferent veins by way of the capillaries which surround the tubules. This concept is opposed to the orthodox theory that the antidiuretic action of pitressin is due to the effect of the hormone on the cells of the tubules.

Sulphamethoxypyridazine in Urinary Infections.

H. G. GRIEBLE AND G. G. JACKSON (*New England J. Med.*, January 2, 1958) report the use in urinary tract infections of sulphamethoxypyridazine with a loading dose of 2·5 grammes and a maintenance dose of 0·5 gramme daily for an average of 35 days in 48 patients. Adequate antibacterial concentrations of sulphonamide were obtained in urine. Four patients had toxic manifestations, and one had sulphonamide crystalluria. A favourable clinical response was obtained in 80% of patients with acute infections and in 24% with chronic infections. Bacteriological cure was obtained in only 21% of the group. The low proportion of cures was comparable to standard doses of other sulphonamides. Mixed bacterial cultures and superinfections during and immediately after treatment were the principal reasons for failure.

The Effect of Ether on the Heart.

R. A. MALT (*Am. Heart J.*, April, 1958) has devised a method of recording the effect of ether anæsthesia in man on the contractile force of the heart, without modification of this effect by adrenaline and noradrenaline reflexly released. The method makes use of a ballistocardiograph of wide-frequency range and a force of ultra-low frequency, and has been tested in healthy young men. It was found that during the third stage of thiopentone-ether anæsthesia the contractile force of the heart was reduced to about one-third of the control value, and there was evidence that the ether was the cause of the myocardial depression.

Barbiturate Addiction.

H. F. FRASER *et alii* (*J.A.M.A.*, January 11, 1958) reported investigations into the administration and withdrawal of secobarbital and pentobarbital. These drugs were given by mouth to 50 healthy volunteers aged 25 to 58 years, over a period of 32 to 365 days, in doses from 0·9 to 2·2 grammes daily, being the maximum doses in each individual for safe ambulatory management. After a varying period up to one year, the drugs were suddenly withdrawn. Those patients on a dose of less than 0·4 gramme daily showed little change, but patients on higher doses reacted strongly on withdrawal in several instances. Convulsions occurred in 14 and delirium in 12. These were patients receiving 0·9 to 2·2 grammes daily. On lower doses of 0·6 to 0·8 gramme daily, three had convulsions, two hallucinations and others minor symptoms. Thus a dose greater than 0·4 gramme is required daily to induce serious withdrawal symptoms.

Response of Breast Cancer to Triethylene Thiophosphoramide.

G. E. MOORE AND J. W. PICKREN (*Arch. Path.*, January, 1958) treated with triethyl thiophosphoramide (TSPA) 33 patients with advanced breast cancer which no longer responded to steroid therapy and had become untreatable by local irradiation. Twenty-three completed the course and it was found that TSPA induced significant remissions lasting several months in approximately one-half of the patients. The practical limitations of therapy were the toxic effects on the bone marrow on the one hand and lack of sensitivity of some tumours to dosage short of the toxic range on the other. The authors state that huge metastatic carcinoma deposits regressed completely in some patients. However, the type of tumour which was likely to respond could not be forecast. The authors suggest that TSPA treatment may find a place as an adjuvant agent, and its value may be greatest in the period immediately after the initial operation when the least number of residual tumour cells are present and before host resistance, if any, if lost.

A Test for Digitalis Intoxication.

E. FLETCHER AND C. F. BRENNAN (*Brit. Heart J.*, April, 1958) refer to the great importance of knowing quickly whether digitalis is likely to be helpful to patients admitted to hospital with apparently intractable heart failure. The physician may be hard put to it to differentiate the nausea and vomiting caused by abdominal visceral congestion and the more ominous sickness due to the central emetic action of toxic doses of digitalis. Tachycardia does not exclude serious digitalis intoxication. Trial doses of digitalis may be hazardous. Electrocardiography may be inconclusive. The authors have used in these circumstances test injections of acetyl strophanthidin. A solution of this substance in 5% glucose and water, containing 0·5 milligramme in every 10 millilitres, is injected intravenously at the rate of two millilitres every five minutes. A drop of heparin is added to the syringe to prevent clotting. The drug usually produces its action within five or ten minutes, this being recorded on a direct-writing electrocardiograph connected to an appropriate lead. Slowing of the heart indicates a therapeutic effect and the production of abnormal rhythm a toxic effect. Procaine amide is kept ready for injection in the event of severe intoxication. If the therapeutic effect is seen, digitalis treatment is indicated. The test substance is dissipated from the system within four hours.

British Medical Association.

SOUTH AUSTRALIAN BRANCH: ANNUAL MEETING.

THE annual meeting of the South Australian Branch of the British Medical Association was held in the Verco Lecture Theatre, Institute of Medical and Veterinary Science, Frome Road, Adelaide, on June 25, 1958, DR. P. W. VERCO, the President, in the chair.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council was received and adopted. The report is as follows.

The Council presents the following report of its activities during the past year.

At the annual general meeting of Branch members, held on June 26, 1957, the following officers and members were elected for the ensuing year:

President: Dr. P. W. Verco.

Vice-President: Dr. C. C. Jungfer.

Honorary Treasurer: Dr. B. S. Hanson.

Honorary Medical Secretary: Dr. Ronald Hunter.

Ordinary Members of Council: Group A—Dr. R. N. C. Bickford, Dr. R. G. C. de Crespigny and Dr. R. McM. Glynn. Group B—Dr. F. L. Thyer (Kadina).

At the first Council meeting of the new year, held on July 4, 1957, the following subcommittees were appointed:

Scientific: Dr. G. T. Gibson and Dr. R. G. C. de Crespigny.

National Health Service: Dr. L. R. Mallen, Dr. C. O. F. Rieger, Dr. R. N. C. Bickford and Dr. J. R. Barbour.

Ethics: Dr. C. O. F. Rieger, Dr. B. S. Hanson, Dr. C. C. Jungfer, Dr. R. McM. Glynn, Dr. M. E. Chinner and Dr. J. W. Sangster.

Parliamentary Bills: Dr. L. R. Mallen and Dr. C. O. F. Rieger.

Library: Dr. M. E. Chinner, Dr. R. Hunter, Dr. R. G. C. de Crespigny and the Honorary Treasurer *ex officio*.

Salaries: Dr. L. R. Mallen, Dr. C. O. F. Rieger and Dr. R. McM. Glynn.

Medico-Pharmaceutical Liaison Committee: Dr. R. Hunter, Dr. C. O. F. Rieger and Dr. J. W. Sangster.

Tuberculosis Standing Committee: Sir Darcy Cowan, Dr. J. L. Hayward, Dr. K. S. Hetzel, Dr. H. D. Sutherland, Dr. J. G. Sleeman and Dr. P. S. Woodruff.

Standing Committee on Public Health: Dr. I. B. Jose, Dr. C. C. Jungfer, Dr. J. E. McCartney, Dr. G. Viner Smith and Dr. J. L. Stokes, together with a representative from the Department of Health with power to coopt.

Standing Committee on Hospitals: Dr. I. B. Jose, Dr. R. H. Elix, Dr. R. G. C. de Crespigny, Dr. J. R. Magarey, Dr. L. R. Mallen and the president-elect, with power to coopt.

The President, Immediate Past President, Vice-President, Honorary Treasurer and Honorary Medical Secretary are ex-officio members of all committees other than the Ethics and Standing Committees.

The President and Honorary Medical Secretary are ex-officio members of the Ethics and of all Standing Committees.

Monthly Scientific Meetings.

Scientific meetings have been held during the year as follows:

1957.—July 25: "The Endocrine Control of the Menstrual Cycle in Health and Disease"; speaker, Professor R. J. Kellar. August 29: "The Management of Diabetes", speaker, Dr. R. A. Burston; discussion opened by Dr. A. Kerr Grant. September 26: "Rectal Bleeding"; speaker, Mr. Mervyn K. Smith; discussion opened by Mr. A. Britten Jones. October 31: "The Royal Flying Doctor Service of Australia"; speaker, Dr. J. M. Dwyer. November 28: "The Hazards of Medical Irradiation"; speakers, Dr. B. S. Hanson, Dr. F. A. Dibden, Dr. C. M. Gurner and Mr. B. Worthley; discussion opened by Dr. D. Phillips.

1958.—February 27: "The Problems of Adolescence"; speakers, Dr. W. A. Dibden, Mr. W. A. Scales and Miss Mary Smith; discussion opened by Dr. F. Boyd Turner. March 27: Clinical meeting at Adelaide Children's Hospital. April 24: Listerian Oration delivered by Professor Frank Fenner, of the National University of Canberra, entitled "The Soil and the Seed: Host Susceptibility in Infectious Disease". May 29: Clinical meeting at Queen Elizabeth Hospital, Woodville.

Additional Lectures.

1957.—October 24: By courtesy of the South Australian State Section, Royal Australasian College of Surgeons. November 5: By courtesy of the Australasian Association of Psychiatrists (South Australian Branch).

1958.—March 26: By courtesy of the South Australian State Section, Royal Australasian College of Surgeons. April 1: By courtesy of the South Australian State Committee, Royal College of Obstetricians and Gynæcologists. May 8: By courtesy of the South Australian State Section, Royal Australasian College of Surgeons.

ATTENDANCES AT COUNCIL AND COMMITTEE MEETINGS.[4]

	Council.	Rehabilitation Subcommittee.	Congress Steering Committee.	Scientific Subcommittee.	Library Committee.
Barbour, J. R.	12	1	—	—	—
Bickford, R. N. C.	12	—	—	—	—
[1]Chinner, M. E.	8	—	—	1	1
de Crespigny, R. G. C.	11	1	—	1	—
Gibson, G. T.	13	—	—	1	—
[2]Glynn, R. McM.	10	—	—	—	—
Hanson, B. S.	11	—	1	1	2
Hunter, R.	11	1	—	1	3
[3]Jungfer, C. C.	10	—	1	1	—
Mallen, L. R.	12	—	1	—	—
Oaten, H. R.	10	—	—	—	—
Rieger, C. O. F.	12	—	1	—	—
Sangster, J. W.	13	1	—	—	—
Thyer, F. L.	11	—	—	—	—
Verco, P. W.	13	1	1	1	—
Meetings held up to June 5, 1958	13	1	1	1	3

[1] Leave of absence from March 22, 1958.

[2] Leave of absence from May 8, 1958.

[3] Leave of absence from March 24, 1958.

[4] Dr. J. M. McPhie attended 12 meetings as the local representative of the Editor of THE MEDICAL JOURNAL OF AUSTRALIA. A Special Subcommittee, consisting of the President, Dr. Rieger, Dr. de Crespigny, Dr. Jungfer and Dr. Glynn, met on October 10, 1957, to consider the proposed Memorandum and Articles of Association of B.M.A. Services Limited. A conference between representatives of the Faculty of Medicine, consisting of Dr. Hetzel, Professor Robson and Dr. Lendon, met representatives of a special Nurses Subcommittee, consisting of Dr. Mallen and Dr. Jungfer, to consider the question of the present-day training of nurses in South Australia on December 9, 1957. A meeting of the members of the Memorial Hall Committee was held on February 19, 1958.

Membership.

The membership of the Branch is 925, the number of student associate members being 37.

The deaths of the following members throughout the year are recorded with regret: Dr. Julian Andrews, Dr. A. W. Campbell, Dr. O. W. Frewin, Dr. Ian Marshman, Dr. L. J. Pellew, O.B.E., Dr. Tarlton Rayment, and Sir George Wilson and Sir Darcy Cowan, who were Honorary Life Members of the Association.

Appointment and Nominations.

Advisory Council on Health and Medical Services: Dr. L. R. Mallen.

British Medical Association Services, Limited: Dr. R. G. C. de Crespigny, Dr. R. M. Glynn, Dr. B. S. Hanson, Dr. L. R. Mallen and Dr. C. O. F. Rieger (Chairman).

British Medical Association, Annual Representative Meeting, Birmingham, 1958: Dr. M. E. Chinner, Dr. B. S. Hanson and Dr. C. Yeatman.

Central Council of the Association, London: Dr. Myles Formby.

Chiropody Board of South Australia: Dr. Neville Wilson.

Dental Board of South Australia: Dr. Graham Bennett.

Federal Council of the British Medical Association in Australia: Dr. L. R. Mallen and Dr. C. O. F. Rieger.

Royal Flying Doctor Service of Australia (South Australian State Section): Dr. J. M. Dwyer.

Florence Nightingale Memorial Committee of Australia (South Australian Branch): Dr. Dorothy Adams and Dr. Mary Walker.

Medical Board of South Australia: Dr. C. O. F. Rieger.

Mothers and Babies' Health Association: Dr. Neville Bickford.

Nurses' Board of South Australia: Dr. Thorold Grant.

Old People's Welfare Council of South Australia: Dr. C. Duguid and Dr. J. G. Sleeman.

Rehabilitation Standing Committee (Departmental): Dr. J. R. Barbour.

"The Medical Journal of Australia" (Editor's Representative for South Australia): Dr. J. M. McPhie.

The St. John Ambulance Brigade (South Australian District): Dr. H. H. Hurst (Deputy Commissioner).

University Post-Graduate Committee in Medicine: Dr. R. M. Holmes, Dr. Ronald Hunter and the President *ex officio*.

World Medical Association: Dr. L. R. Mallen (Deputy Chairman of Council).

Sections Formed for Special Knowledge.

Section of Anæsthetics.

During the current year 1957-1958 the membership of the Section has grown to 37 members.

In accordance with our practice of bi-monthly meetings, five meetings were held during this period with an average attendance of 19 members. Problems pertinent to the Section, in both local and Federal spheres, were discussed. At these meetings six excellent papers were delivered to the Section by members, and three interesting "travelogues" were presented by those members who had recently returned from visits overseas.

A highlight of the year's activities was the recent visit as guest of this Branch of Professor Lucien Morris, Professor of Anæsthesiology, Washington University, Seattle. Professor Morris impressed us with his personality and excellent address.

The local Executive consists of: Chairman, Dr. J. A. Ferris; Vice-Chairman, Dr. M. C. Newland; Honorary Treasurer, Dr. E. C. Hallett; Honorary Secretary, Dr. D. P. Dineen; Past President, Dr. John Stace.

Section of Clinical Medicine.

There are 38 financial members—an increase of six over last year.

At the annual general meeting, held on Tuesday, May 14, 1957, the following officers were elected: Chairman, Dr. J. Mark Bonnin; Honorary Secretary and Treasurer, Dr. Ivan Camens; Committee, Dr. H. Lander, Dr. J. Pedler and Dr. R. Hecker.

Meetings were held in the Chest Clinic on the second Tuesday of May, August and November, 1957, and March, 1958, the average attendance being 27 members. Commencing with the November meeting, it was decided to alter the method of case presentation, so that all the cases would be demonstrated in the main hall at the commencement, with the discussion following. This has led to more efficient conduct of the meetings. A considerable variety of interesting cases has been presented, and one of the meetings took the form of a discussion of aspects of the surgical treatment of mitral stenosis.

The B.M.A. (Section of Clinical Medicine) Prize for 1957 was won by Mr. Donald Richard Hall.

Ophthalmological Society of Australia (South Australian State Section).

The annual general meeting of the South Australian State Section of the Ophthalmological Society of Australia was held in March, 1958, when the following officers were elected for the ensuing year: Chairman, Dr. M. E. Schneider; Vice-Chairman, Dr. F. J. B. Miller; Committeeman, Dr. D. O. Crompton; Honorary Secretary, Dr. A. A. Tye.

The business throughout the year was mainly confined to a few subjects, amongst which was the holding of shares in companies dealing with optical or ethical products, and the Federal Council of the British Medical Association in Australia was approached and direction given. The question of the remuneration of the refractionist at the Royal Adelaide Hospital was discussed, and it was decided to recommend to the Board of the hospital that £5 5s. per session be paid. The Executive Committee of the Ophthalmological Society of Australia was approached as to their views on the employment of an opticían by an Adelaide ophthalmologist. This matter has not been finalized.

Throughout the year the Section has been active in preliminary organization of the Ophthalmological Congress, to be held in Adelaide in October, 1958.

The Otolaryngological Society of Australia (South Australian State Section).

The second annual general meeting of the Otolaryngological Society of Australia (South Australian State Section) was held on March 26, 1957. The following officers were elected: Chairman, Dr. A. S. deB. Cocks; Vice-Chairman, Dr. S. Pearlman; Committeeman, Dr. P. G. Jay; Secretary-Treasurer, Dr. R. G. Plummer.

Ordinary general meetings were held on May 7 and October 29, 1957. The May meeting was devoted to showing cases and discussion. At the October meeting, Dr. D. Phillips, from the Central Middlesex Hospital, London, gave a paper on radiotherapy in relation to ear, nose and throat problems.

Early in the year Dr. S. Pearlman died suddenly. This was a sad loss to the small Society and to the medical profession as a whole. Dr. R. H. von der Borch was appointed Vice-Chairman of the Society to fill the vacancy left by Dr. Pearlman's death.

One extraordinary general meeting was held on June 11, 1957, to discuss the shortage of otolaryngologists in South Australia and ways for recruiting new members to the specialty.

The Post-Graduate Committee in Medicine and the Otolaryngological Society of Australia arranged for Mr. C. P. Wilson, senior ear, nose and throat surgeon at the Middlesex Hospital, London, to visit Australia during the year. Mr. Wilson stayed in Adelaide from June 28 until July 3. He displayed enormous energy and enthusiasm at a clinical meeting, an operative demonstration, and five lectures to members of the O.L.A. and Fellows of the Royal Australasian College of Surgeons, the British Medical Association and medical students.

No further meeting was held after October.

Affiliated Local Associations of Members.

Northern Medical Association.

Election of officers: President, Dr. V. W. Potter; Vice-President, Dr. C. C. Dewar; Honorary Secretary, Dr. R. T. Davidson.

Four meetings were held throughout the year. The May meeting was held at Port Pirie with seven members present; speakers, Dr. R. Grose Plummer and Dr. J. H. Slade on "E.N.T. Problems" and "Common Eye Diseases" respectively. The August meeting was held at Gladstone, when ten members were present; speakers, Dr. A. J. Hakendorf on "Skin Diseases and Their Treatment", Dr. Robert West on "Indications for Surgery in Cardiac Conditions". The November meeting was held at Yacka, when eight members were present; speakers, Dr. A. D. Byrne on "Obstetrical Advances" and Dr. Lansell Bonnin on "Fractures in Children". The February meeting was held all day at Clare with eleven members present; speakers, Dr. H. R. Gilmore on "Hypertension", Dr. I. S. Magarey on "Pædiatrics", Dr. W. F. Joynt on "Obstetrical Problems", Dr. A. C. McEachern on "Prostatic Hypertrophy and Prostatectomy".

An extraordinary meeting was held at Clare in October, 1957, when the President of the Branch (Dr. Peter W. Verco) and the Vice-President addressed members of the Association. Sixteen members were present.

Upper Murray Medical Association.

There are eleven members of this Association comprising the following: President, Dr. T. G. Kohler; Vice-President, Dr. J. G. Wilson; Honorary Secretary, Dr. G. Hasenohr; Dr. R. L. Miller, Dr. M. V. Samuel, Dr. R. H. Andrews, Dr. W. J. Sleeman, Dr. R. K. Wilson, Dr. B. D. Downing and Dr. K. A. G. Evans.

The year has been an active one, three post-graduate week-ends having been held.

At Waikerie we had Dr. V. Bockner and Dr. G. G. Wyllie, who gave lectures, and Dr. R. A. A. Pellew, who had a clinical demonstration, using cases from the surrounding practices.

At Loxton, later in the year, lectures were given by Dr. R. C. Angove, Dr. I. B. Jose, Dr. Karl Ball and Dr. L. C. E. Lindon, who accompanied Dr. Jose and helped very much by his comments and summaries of surgical subjects.

At the Berri meeting, Dr. B. Venner, Dr. Malcolm Miller and Dr. Max Moore combined to refresh and increase our knowledge on their special subjects.

Members greatly appreciated the efforts of these post-graduate lecturers, and hope to see many more come to the Upper Murray Medical Association.

South-Eastern Medical Association.

Five meetings and a film evening were held during the year.

On July 21, 1957, at Mount Gambier, a clinical meeting was held, and after dinner Professor Kellar spoke on "Perinatal Mortality".

On October 19, 1957, at Millicent, a clinical meeting was held, and after dinner Dr. Lansell Bonnin spoke on "Low Back Pain".

On February 22, 1958, at Mount Gambier, a clinical meeting was held, and dinner was followed by an address and political discussion by the President of the Branch, Dr. Peter Verco. He was supported by Dr. C. C. Jungfer, the Vice-President.

On April 19, 1958, at Naracoorte, a clinical meeting was held, and after dinner Dr. R. Grose Plummer spoke on some ear, nose and throat problems. At this annual general meeting the following officers were elected for the year: President, Dr. J. S. Jeffries; Vice-President, Mr. T. E. G. Robertson; Secretary-Treasurer, Dr. D. J. Harris; Committee, Dr. A. M. Huntley and Dr. J. E. Dunn. The annual "refresher course" was held at Mount Gambier on June 22, 1957. Visiting speakers were: Dr. G. F. Donald, "Skin Diseases Affected by Sunlight"; Dr. M. T. Cockburn, "Pædiatric Topics"; Professor H. N. Robson, "Collagen Diseases and Purpura".

There are 34 financial members of the Association, and the average attendance at meetings, excluding visitors, has been 20.

Yorke Peninsula Medical Association.

During the year ending June 30, 1958, post-graduate lectures were held in July and October, 1957, and March, 1958. Local association meetings were held in between.

Arrangements were made for four possible lecture periods for the coming year.

In November, members were pleased to meet the President and Vice-President of the Branch, and matters affecting the Association were thoroughly discussed.

At the annual meeting in March, Dr. Reilly, of Minlaton, was appointed President and Dr. F. L. Thyer, Immediate Past President. Dr. Smibert was reappointed Secretary-Treasurer for another year, and Dr. Chappel, of Maitland, and Dr. Barnes, of Kadina, quorum members.

Pensioner Medical Service.

After protracted negotiations between the Federal Council and the Government regarding the fees payable to medical practitioners participating in the Pensioner Medical Service, early in March, 1958, the Minister offered to increase the fees then payable of 10s. and 12s. to 11s. for surgery consultations and 13s. for domiciliary visits for a term of three years from July 1, 1958. He also offered to reduce the radius in country areas beyond which mileage is payable from three miles to two miles.

All previous representations by the Federal Council had emphasized the firm opinion that appropriate fees should be 12s. 6d. per surgery consultation and 15s. per visit, which, it was considered, represented a concessional reduction of approximately 40% on current fees payable in private medical practice. The Government did not share this opinion.

Prior to the receipt of this offer, the Federal Council also expressed the opinion that any new agreement entered into should be for a term of two years, and not three years, as suggested by the Minister.

The correspondence was circulated to all general practitioners participating in the Service on March 31, 1958, and members were asked to signify their willingness, or otherwise, to continue to provide the service at the rates of payment offered by the Minister.

An analysis of the replies received from members indicated that an overwhelming majority were in favour of accepting the new terms. The Federal Council was later advised that, whilst the offer was acceptable to the large majority of members, the Council felt that the fees were still inadequate and that the Federal Council should continue to negotiate for the fees which it considered should be payable by the Government for medical services to the pensioner group at the appropriate time.

National Health Service.

On the suggestion of the South-Eastern Medical Association, the Council communicated with the Association of Registered Health Benefit Organizations operating in South Australia in September, 1957, with the suggestion that steps be taken to print a large quantity of slips for inclusion in the monthly professional accounts of members, as a means of informing patients of the benefits which they received through membership of an approved voluntary health insurance organization. The pamphlet also emphasized the fact that Commonwealth benefits were only payable to members of "approved" organizations. Patients who had failed to join a voluntary organization were thus made aware of the advantages which it offers.

It was considered that this was one way in which the medical profession could actively encourage members of the public to link up with an appropriate fund as a means of insuring themselves against the costs of medical and hospital care, and with a view to increasing the percentage of population covered by health insurance schemes. The Council believes that its action may assist to do this, and approximately 500,000 of these slips were printed and sent to the office of the Branch for distribution to members.

As from January 1, 1958, new schedules of medical benefits were introduced by the Government, which involved complete re-numbering of the item numbers. Details of the professional service rendered are necessary if the insured patient is to obtain the refund to which he is entitled, and therefore members were asked to be more precise in identifying services given by means of item numbers, and to provide sufficient details on their accounts to enable more rapid assessment of claims by health organizations.

Details of a plan for a National Health Service for Australia, propounded by the Australian Labour Party and based on the lines of the British scheme, were circulated to members for information in October, 1957.

A further version of these plans was circulated to members with appropriate comment by the General Secretary of the Federal Council in May, 1958.

During the year the President and Vice-President of the Branch took the opportunity of visiting practically all metropolitan groups and country local associations of members. They fully explained the plans of the Australian Labour Party for a complete health service to members of these groups and informed them of the evils of socialized medicine, as opposed to the present system of voluntary health insurance sponsored by the organized medical profession.

Medical Certification.

On April 1, 1958, an arrangement commenced with the Employers' Federation of South Australia, under which it was agreed that employers would refrain from asking an employee, who had been absent from work for an alleged illness for which he had not been attended by a medical practitioner, to "go and get a medical certificate". It was pointed out to the Federation that, under circumstances such as these, a medical practitioner was not in a position to give a certificate and that refusal to do so on his part often led to ill feeling between the parties concerned. The Employers' Federation endorsed the views of the Council regarding this important matter and undertook to advise employer members of their organization accordingly.

The question of medical certification has previously been considered by the Council at some length on a number of occasions, and it is thought that if all employers will cooperate with their Federation and with the Council in giving effect to this request, an ideal way will have been found to deal with a rather difficult situation. Similar representations were also made to the Public Service Commissioner.

Members of the Branch were also reminded that the greatest degree of care and responsibility must be exercised by them when issuing a medical certificate, and it was recommended that certificates given by them should take the following form:

BRITISH MEDICAL ASSOCIATION (SOUTH AUSTRALIAN BRANCH).

Balance Sheet as at December 31, 1957.

LIABILITIES.	£ s. d.	£ s. d.
Sundry Creditors		137 17 6
General Fund:		
Balance, January 1, 1957	10,166 17 8	
Add Net Surplus for Year	1,272 8 4	
Add Transfer from Building Fund	115 0 0	
		11,554 6 0
		£11,692 3 6

ASSETS.	£ s. d.	£ s. d.
Fixed Assets, at Cost, *less* Depreciation:		
Furniture	1,806 2 0	
Delineascope and Projector	4 16 4	
Lister Medals	2 0 0	
		1,812 18 4
Current Assets:		
British Medical Hall Company, Limited—Shares at Cost	4,217 10 0	
Australasian Medical Publishing Company, Limited:		
6¼% Debentures	3,130 0 0	
Advances not converted	28 3 1	
		7,375 13 1
Stocks on Hand	269 12 4	
Sundry Debtors	1,502 3 6	
		1,771 15 10
Cash at Bankers:		
National Bank of Australia	227 19 4	
Commonwealth Savings Bank	144 13 8	
Savings Bank of South Australia	340 7 3	
Savings Bank Library Account	1 19 0	
Cash in Hand	16 17 0	
		731 16 3
		£11,692 3 6

Special Funds and Investments.

	£ s. d.	£ s. d.
Listerian Oration Fund:		
Balance, January 1, 1957	417 18 4	
Add Net Income	23 8 6	
	441 6 10	
Less Oration Expenses	52 14 6	
		388 12 4
Frank S. Hone Memorial Fund:		
Balance, January 1, 1957	712 1 1	
Add Interest	42 11 1	
	754 12 2	
Less Prize	15 15 0	
		738 17 2
Trent Champion de Crespigny Memorial Fund:		
Balance, January 1, 1957	287 13 2	
Add Interest	7 17 10	
		295 11 0
British Medical Hall Building Fund:		
Balance, January 1, 1957	-549 6 11	
Add Interest and Donations	457 0 7	
	1,006 7 6	
Less Transfer General Fund	115 0 0	
		891 7 6
		£2,314 8 0

	£ s. d.	£ s. d.
Listerian Oration Investments:		
E.T.S.A. Debentures	310 0 0	
Savings Bank of South Australia	78 12 4	
		388 12 4
Frank S. Hone Memorial Fund:		
Commonwealth Bonds, 3½%, 1959	50 0 0	
South Australian Gas Company Debentures	300 0 0	
E.T.S.A. Debentures	250 0 0	
Savings Bank of South Australia	138 17 2	
		738 17 2
Trent Champion de Crespigny Memorial Fund:		
Savings Bank of South Australia		295 11 0
British Medical Hall Building Fund:		
Commonwealth Bond, 3½%, 1960	200 0 0	
Savings Bank of South Australia	371 2 6	
Commonwealth Savings Bank, General Account	320 5 0	
		891 7 6
		£2,314 8 0

F. C. W. DOBBIE, Secretary. B. S. HANSON, Honorary Treasurer.

We hereby report that we have examined the books and accounts of the South Australian Branch of the British Medical Association Incorporated for the year ended December 31, 1957. In our opinion the above Balance Sheet, together with the statements of the Special Funds, are properly drawn up so as to exhibit a true and correct view of the affairs of the Branch as at the above date, according to the best of our information, the explanations given to us, and as shown by the books produced.

Adelaide, May 14, 1958.

ANNELLS, TILLEY, HUNWICK AND CO.,
Chartered Accountants (Aust.).

CERTIFICATE OF SICKNESS.

This is to certify that I have examined Mr./Mrs./Miss .....on..... In my opinion he/she is/was suffering from..... He/She is/was unfit for work from.....and up to and including .....

Date..... Signed.....

Qualifications.....

Bulk supplies of these certificates were later printed for sale to members.

Workers' Compensation Act: Schedule of Medical Fees.

Following an increase in the fees for several of the more common forms of operative procedures by arrangement with the underwriters and the Victorian Branch of the Association, similar representations were made to the Fire and Accident Underwriters Association of South Australia on April 14, 1958, with a view to the adoption of the same schedule of fees in this State. The fees for surgical procedures have not been altered since 1951.

BRITISH MEDICAL ASSOCIATION (SOUTH AUSTRALIAN BRANCH).

Income and Expenditure Account for the Year Ended December 31, 1957.

1956. £		1957. £ s. d.
2,424	To Secretariat	2,503 3 0
380	„ Postages	454 11 7
454	„ Stationery and Printing	480 15 4
33	„ Telephone	48 15 7
12	„ Legal Expenses	25 11 2
15	„ Audit Fee	15 15 0
328	„ General Expenses	344 15 11
139	„ Entertainment	169 15 9
205	„ Depreciation	201 1 4
—	„ Advertising	6 13 4
609	„ Net Surplus for Year	1,272 8 4
		£5,523 6 4

1956. £			1957. £ s. d.	£ s. d.
8,023	By Gross Subscriptions			8,815 0 0
6,142	City	6,662 2 0		
1,855	Country	2,109 17 0		
35	Students	43 1 0		
3,857	*Less* Deductions			3,512 16 4
1,367	British Medical Association, London	1,434 10 1		
473	The Medical Journal of Australia	395 16 3		
1,018	Federal Council	1,082 10 0		
600	Library	600 0 0		
4,575	„ Net Subscriptions			5,302 3 8
127	„ Interest			221 2 8
				£5,523 6 4

Advice has now been received indicating that the present fees will be raised to the level of those now operating in Victoria as from July 1, 1958. Arrangements have been made to reprint copies of the new schedule for distribution to members of the respective associations.

Queen Elizabeth Hospital.

On December 12, 1957, it was announced in the Press that the State Government had decided to allocate for the use of private practitioners in the General Section of the Queen Elizabeth Hospital 50 beds, and that these would not be available to members of the honorary staffs of either the Queen Elizabeth Hospital or the Royal Adelaide Hospital. The decision of the State Government to make these beds available for the use of local doctors is to be commended, and should be the means of preserving and maintaining a high standard of medical service for the general public residing in this area.

It is to be regretted, however, that no move has yet been made to bring the Maternity Section into line with the General Section by the allocation of beds for the use of patients of doctors who are not members of the honorary medical staff.

Representations have been made to the Board on several occasions by the Council, stressing the advisability of making available some of the unoccupied beds in this section not needed for public patients, as a flexible arrangement, for the patients of medical practitioners not on the honorary medical staff. It is hoped that favourable consideration may be given by the Board to this request.

Closing of Pharmacies on Saturday Evenings as from February 1, 1958.

The decision of the Federated Pharmaceutical Service Guild of Australia (South Australian Branch) to close pharmacies on Saturday evening has been vigorously opposed by the Council since the intention of the Guild to do this was first brought under notice. It has been pointed out to the Guild that this decision has inflicted considerable hardship on members of the public who receive a prescription from their doctor after noon on Saturday. They often experience great difficulty in getting this dispensed before the following Sunday evening.

The Council has previously suggested to the Guild on a number of occasions that a roster system should be introduced amongst chemists in the various districts so as to ensure that one pharmacy at least will be open during the usual hours on Saturday evenings for the dispensing of emergency prescriptions. Although this proposal has been rejected by the Guild, it is thought that weight of public opinion may eventually cause the Guild to alter its previous decision by instituting such a system.

The attention of the Federal Council has also been drawn to the difficulty being experienced regarding the dispensing of emergency prescriptions on Saturday evenings, and the complaint has been referred to the Federated Pharmaceutical Services Guild of Australia.

Proposed Establishment of "Accident Emergency Service".

On February 17, 1958, members were advised that the Council was considering the question of taking steps to establish a State-wide "Accident Emergency Service" for the assistance of country members. The aim of the service would be to ensure that skilled advice and assistance would be available by the speediest means of travel to help in any emergency that may arise, such as in the case of a serious accident involving a number of injured persons. It is envisaged that after the emergency treatment has been given the team would return to Adelaide, leaving the patients under the care of the local practitioner.

Country members of the Branch have been asked to give serious thought to this proposal. If in their view the establishment of such a service is necessary, action will be taken to institute a roster of emergency teams whose services will be available should the necessity arise.

Medical Ethics: Possession by Doctors of Shares in Ethical Companies.

An important decision concerning the ethics of medical practice was made by the Federal Council at the February meeting, 1958, when, in response to inquiries from several of the Branches, it was resolved:

> That the Federal Council is of the opinion that it is unethical for a member of the British Medical Association, directly or indirectly, to apply for or to be interested or concerned in the application for or to acquire or retain, whether in his own name or in that of his nominee, any stocks, shares or other interest in any company engaged in the sales of drugs, medicines, or medical or surgical appliances (hereinafter referred to as "the vending company") or in any other company which to the knowledge of such member holds shares in the vending company where it is directly or indirectly a term, condition, agreement or understanding attaching to the acquisition or ownership of such stock, shares, or other interest, that the member will prescribe products of the vending company or otherwise promote the sale of such products.

Memorial Hall.

At a meeting of the Branch Council held on November 7, 1957, it was decided to elect from prominent members of the Branch a Memorial Hall Committee for the purpose of sponsoring an appeal for funds to proceed with the erection of a hall and other amenities as an extension of the existing building at Brougham Place, and, through a subcommittee, to supervise the planning, erection and furnishing of the new building. Sir Henry Simpson Newland was unanimously requested to act as chairman of both these committees, and later consented to do so.

A meeting of the committee was held on February 19, 1958, when it was decided to make an approach to the Federal Treasurer, through the Minister for Health (Dr. Cameron), with a view to permitting donations made by members to the Branch for the purposes of the Memorial Hall to rank as allowable deduction for taxation purposes.

A letter setting out the grounds on which this request was made was sent to Dr. Cameron on March 13, 1958, and advice has since been received from the Minister indicating that he has brought the matter under the notice of Sir Arthur Fadden.

In the meantime, however, the money allocated by the Council to the Building Fund has resulted in the steady accumulation of reserves, which are invested at the maximum interest earning rate, and it is envisaged that the Branch will be in a position to proceed with its building plans early in 1959.

In conjunction with the establishment of a Memorial Hall Committee, steps were also taken by the Council at the same meeting to form a company, operating under the name of "B.M.A. Services Limited", for the purpose of conducting its own medical agency and embarking on other forms of services for and on behalf of the medical profession in South Australia. This company commenced operations as from January 1, 1958. The new company has three shareholders only, these being the Branch itself and two other Council members—the honorary treasurer (Dr. B. S. Hanson) and Dr. C. O. F. Rieger respectively—who each hold one share in trust for the Branch. These two members, together with Dr. R. G. C. de Crespigny, Dr. R. M. Glynn and Dr. L. R. Mallen, comprise the first directors.

All profits made by B.M.A. Services Limited will, after the payment of taxation, be applied solely towards the objects of the Branch, and its activities should, with the assistance of members, materially assist the Branch in its objective of erecting a Memorial Hall, together with extra office accommodation which is urgently required. These activities were previously carried on by the British Medical Hall Company, Limited, which will be placed in voluntary liquidation at an early date.

Frank S. Hone Memorial Prize.

The prize, which was awarded on the results of the 1957 examination for the degree of Bachelor of Medicine and Bachelor of Surgery, was awarded to Margaret Anne Kinlough.

Federal Council of the British Medical Association in Australia.

The Federal Council met in Adelaide on August 30 and September 2, 1957, and in Hobart on February 26 to 28, 1958. On both occasions the Branch was represented by Dr. L. R. Mallen and Dr. C. O. F. Rieger.

Reports of these meetings were later published in THE MEDICAL JOURNAL OF AUSTRALIA.

Death of Dr. Mervyn Archdall.

The Council learned with great regret of the death of Dr. Mervyn Archdall, formerly Editor of THE MEDICAL JOURNAL OF AUSTRALIA, who died in Sydney on September 6, 1957, very shortly after he had been awarded the Gold Medal of the British Medical Association in Australia. The sincere sympathy of the Council was later conveyed to Mrs. Archdall.

Honours and Awards.

The Council extends its congratulations to Dr. L. R. Mallen, on whom Her Majesty the Queen conferred the O.B.E. in the New Year Honours list, also to Dr. F. L. Thyer and Dr. J. D. Fotheringham, who have been admitted to the grade of Serving Brother, Dr. J. M. Pedler, who has received promotion to the grade of Officer, and Dr. H. H. Hurst, who has received promotion to the grade of Commander, in the Venerable Order of St. John of Jerusalem.

PETER W. VERCO,
President.

FINANCIAL STATEMENT.

The financial statement was presented by Dr. C. O. F. Rieger on behalf of the Honorary Treasurer, Dr. B. S. Hanson, who was abroad. The statement was adopted.

ELECTION OF OFFICE-BEARERS.

Dr. Verco announced that exactly the right number of nominations had been received for the existing vacancies on the Council for the ensuing year, and therefore there had been no election. He then declared Dr. C. C. Jungfer elected to the office of President for the ensuing year and invested him with the badge of office. Dr. Jungfer expressed his appreciation at being elected.

Dr. Jungfer then announced the following office-bearers for the ensuing year:

Vice-President: Dr. George Gibson.

Honorary Treasurer: Dr. J. M. Dwyer.

Honorary Medical Secretary: Dr. Ronald Hunter.

Members of Council: Group A (metropolitan), Dr. Noel Bonnin, Dr. Noel Halloran, Dr. R. C. Heddle. Group B (country), Dr. J. S. Jeffries (Millicent).

Messrs. Annells, Tilley, Hunwick and Company were appointed auditors for the ensuing year.

PRIZE FOR CLINICAL MEDICINE.

The Honorary Secretary of the Section of Clinical Medicine presented to Dr. Verco the winner of the Section of Clinical Medicine Prize for 1957, Mr. Donald R. Hall. Dr. Verco congratulated Mr. Hall and handed him a certificate of the award.

RETIRING MEMBERS OF COUNCIL.

A vote of thanks was passed to the retiring members of Council, Dr. M. E. Chinner, Dr. B. S. Hanson, Dr. J. R. Barbour, Dr. J. W. Sangster and Dr. H. R. Oaten.

RETIRING PRESIDENT'S ADDRESS.

Dr. Peter Verco delivered his retiring president's address (see page 277), after which an appropriate vote of thanks to him was passed.

NEW SOUTH WALES BRANCH.

SPECIAL GROUP OF NEUROLOGY AND PSYCHIATRY.

A MEETING of the Special Group of Neurology and Psychiatry of the New South Wales Branch of the British Medical Association was held on October 15, 1957.

Psychological Aspects of Car Accidents.

DR. I. A. LISTWAN read a paper entitled "Psychological Aspects of Car Accidents" (see page 282).

THE HONOURABLE A. G. ENTICKNAP, M.L.A., the Minister for Transport, made the following remarks.

Mr. Enticknap said that the toll of the road was one of the major problems flowing from the advent of the motor vehicle. Everybody realized that fact, but too few came forward with practical suggestions to mitigate the worst evils of the problem, which were, of course, a great social and economic loss to the community, apart altogether from the aspect of individual suffering. It was a problem about which their best intellects and most informed citizens could exercise their minds and put their knowledge to use for the benefit of all. In other words, an objective collection of data on the problem was required and the scientific treatment of that data. Those held out by far the best prospects of success. It was certainly a great improvement on the "too hard to deal with" attitude which was often met and on the "hit or miss" sort of approach adopted by some arm-chair critics.

Mr. Enticknap said that, frankly, he welcomed the sort of inquiry which this group had undertaken. It could only do good. It could certainly do no harm. If it resulted in the collection of worthwhile data on scientific principles, then he was certain that the advance which must inevitably accompany such an inquiry—even if only to debunk some current misconceptions—would do a great amount of good.

In order to show the enormity of the problem he proposed to give some data on road accidents which had been prepared in the Ministry of Transport. The data were prepared on information furnished in police accident reports. He said that everyone would appreciate that there were quite important limitations on the value of the statistics. For instance, no doubt there were many road accidents occurring which were not reported. However, in the absence of anything better, they were at least useful as a guide to some conclusions, however tentative they might be.

The number of accidents in New South Wales in the year ended June 30, 1957, was 39,725 (an increase of 2·3% over that in 1955-1956), the number of persons killed was 774 (4·2% decrease) and the number of persons injured was 17,321 (1·6% increase). The number of accidents of persons injured were the highest on record, but the number of persons killed decreased. The rate of persons killed per 10,000 vehicles registered was the lowest on record and the injured rate was the lowest since 1953.

The June quarter recorded the highest number of accidents and the December quarter the highest number of casualties. Fatalities recorded in May were the highest, with January the lowest. Accidents and casualties between 4 p.m. and 6 p.m. were higher than for any similar two-hourly period. The most deaths occurred between 6 p.m. and 8 p.m.; 46% of the accidents in which deaths occurred took place on

straight roads. There was, of course, a much greater mileage of straight roads than any other type of roadway. Accidents on bends and hills increased sharply.

Human failure was responsible for 80% of the accidents, 90% of the fatalities and 80% of the persons injured. Drivers of motor vehicles were responsible for 65% of the accidents and 53% of the casualties. Inattentive driving caused more accidents and casualties than any other single cause. Accidents attributed to hit-run drivers increased by 66·3% on last year's figures. Accidents and casualties attributed to motor cyclists increased, although the average number of motor cycles registered decreased. Failure on the part of pedestrians to cross the roadway with due care caused 41% of the accidents, 45% of the persons killed and 40% of the injured attributed to this class of road users. The number of accidents attributed to defective equipment increased considerably on the previous year's figures. Faulty brakes, steering and tire blow-outs were the major causes of accidents.

The age groups of the various classes of road users responsible for the most accidents and casualties were as follows: motor drivers, 21 to 29 years; pedal cyclists, 7 to 16 years; motor cyclists, 17 to 20 years; pedestrians, 7 to 16 years; passengers, 21 to 29 years. The number of persons killed and injured daily averaged 2·1 and 47·4 respectively.

As Mr. Enticknap understood it, the study of the group was concerned primarily with the psychological aspects of road accidents. They were attempting to study the accident problem from the angle of human personality. They were paying particular regard to personality defects and psychological attitudes. This was an aspect which had not, in his view, received nearly the attention it deserved. In fact, he was doubtful if there had really been any serious attempt, up to the present, to study it. It was obviously a most fertile field of study and one which, in their preoccupation with physical factors, for example, eyesight and mere physical capacity to get a car going and keep it going, had too long been neglected.

Mr. Enticknap said that in South Australia good work had been done in oral tests, and a lot might be learnt from the experience of that State.

But, fundamentally, the exercise which had been undertaken was a highly commendable one. It was essentially a new approach and one to which they could attach much hope. The disciplined study of the psychology of road accidents must produce fruitful results.

Mr. Enticknap said that, as Minister for Transport, he gave his support, and wished the group well in its endeavours.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

THE NATIONALITY OF THE HONORARY STAFF OF THE PRINCE ALFRED HOSPITAL, SYDNEY.[1]

[From the *Australasian Medical Gazette*, June, 1891.]

A DISCUSSION has been recently carried on in the lay Press as to the reason that of the honorary medical staff of the Prince Alfred Hospital, Sydney, so small a minority are holders of Irish qualifications. It seems that but one of the surgeons, Dr. Knaggs, possesses a diploma obtained in that country.

The discussion was started by an anonymous writer signing himself "An Irish Surgeon", who in a letter published in the Sydney "Daily Telegraph" raises the cry of "another injustice to Ireland" by calling attention to this circumstance. We, equally with this sensitive individual, have studied the list of the honorary staff of the Prince Alfred Hospital, but quite fail to see that the well-being of the institution has in any way suffered by the appointments made or, even if every "Irish Surgeon" in the colony had made application for appointment, how the patients (whose well-being is the special thing to be studied) would have gained by the selection of any of them to the exclusion of the present appointees.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

"ETHICAL" LITERATURE.

SIR: It would be a sad thing if the strong reaction aroused in Dr. Matchett by the drug company's "personal" letter, were to spread among the medical profession.

This reaction typifies the ingratitude of some doctors, who do not appreciate the trouble gone to by the drug companies to keep them up to date, while taking a minimum of the doctor's time. Contrast the ease of assimilation of the advertiser's pamphlet, gaily coloured, profusely illustrated, and with a minimum of words, all in big print, with, on the other hand, the tedium of the lengthy medical journal article, with its row upon row of small-printed black and white words. Graphs in the pamphlet are simple, dealing with one or two cases at most, and equivocal or contentious material has, thoughtfully, been omitted. Graphs in medical articles, on the other hand, often require lengthy perusal, being cluttered up with numerous cases, controls etc.

Does Dr. Matchett not realize the advantage of quickly acquired information about new drugs? Can he hope to be the first in his district to use a drug, if he does not open his mail? Has he not noticed that new drugs always cause less side effects than those used for a number of years?

In any case, too much space is taken up in medical articles, and in text-books of pharmacology and therapeutics, in listing possible side effects of drugs. We can discover these in our patients without reading about them.

Perhaps Dr. Matchett is a reactionary in prescribing therapy, preferring to wait months, or even years, for a report on the drug by the Medical Research Council, or some similar group of "egg-heads", thus showing a lack of the true pioneering spirit required for adventurous therapy.

Dr. Matchett's attitude is dangerous. If too many adopt it, the profession will have only itself to blame if the drug companies in future refrain from posting to us this literature.

Yours, etc.,

464 Hunter Street,
Newcastle,
New South Wales.
August 6, 1958.

K. H. WHITE.

"INNOCENT" INVERSION OF THE T WAVE.

SIR: I would like to strongly endorse Dr. W. A. Seldon's statement that "mistakes in the interpretation of electrocardiograms are more commonly due to over diagnosis than to under diagnosis". Manufacturers of electrocardiograph machines would do well to engrave on the lid the words *"Primum non nocere"*. Dr. William Evans, of London, is reported to have recently emphasized the frequency of over-diagnosis of coronary heart disease, and this is specially liable to occur where there is atypical chest pain and a borderline electrocardiogram.

Dr. Seldon then discussed "innocent" T-wave changes due to fear and increased sympathetic tone. Whilst I agree that T-wave changes can be induced by a large number of non-pathological states, including cold drinks, food, rapid heart action, tobacco, cholinergic drugs, digitalis, etc., I would be hesitant about ascribing T-wave changes to fear and increased sympathetic tone *per se*. In a critical study of normal subjects Rosen and Gardberg[1] showed that similar "innocent" T-wave changes can result from a number of easily reproducible variables, e.g., following exercise, the taking of food, or smoking, and especially a combination of the latter two.

Two main factors were evident, an increase in heart rate and a change in heart position. Normally an increase in rate increases the P wave in leads 2 and 3, and often produces a more noticeable auricular T wave. This may continue beyond the QRS and depress the first part of the ST segment. Moreover, after exercise many individuals, presumably because of a change in the respiratory mid-position, show QRS changes indicating a change of the electrocardiographic heart position. Furthermore, an increase in rate diminishes the ventricular gradient (Ashman[2]), and tends

[1] Rosen, I. L., and Gardberg, M. (1957*a*), *Am. Heart J.*, 53: 495.

[2] Ashman, R. F., Gremillion, A. I., and Byer, E. (1945), *Am. J. Physiol.*, 143: 453.

to approximate the ideal curve produced by two monophasic waves of depolarization and repolarization from endocardial and epicardial surfaces with uniform rates of repolarization. This is a curve with an upright QRS and inverted T wherein AQRS equals AT. The experimental basis of this assumption has been demonstrated by Ashman[3] (1945). The practical implication is that an increase in heart rate even of a modest degree (and sometimes for a while after the rate returns to normal, Rosen and Gardberg[1]) can result in ST depression or T-wave inversion provided that the lead in question consists largely of an R wave.

This change is due to the fact that the gradient is derived in the frontal plane from the resultant of the frontal plane QRS and T vectors, and it follows that a lessening in magnitude of the gradient with the QRS vector fixed must lead to a change in the direction and magnitude of the frontal T vector. This may produce minor degrees of T wave changes in the limb leads which would still pass as normal. On rare occasions, however, owing to the heart's electrical position being markedly clock-wise rotated, it is possible to get T2 inverted and even T1 inversion (see figure 13 in Rosen and Gardberg[3]). As the T vector change occurs in three dimensions, it is easy to see how the precordial leads can be similarly affected, especially the left ventricular leads, as they lie almost in the frontal plane. This may explain the changes in Figure III of Dr. Seldon's article, as the rate increase from A to B is from 86 per minute to 106 per minute.

Change in body posture, even being propped up from the supine to an angle of 45 degrees, deep breathing and a distended abdomen can cause change in the heart's electrical position. Lack of radiological evidence of this change of position means nothing, as was clearly demonstrated by R. P. Grant,[4] who pointed out that anatomical and electrical heart positions are completely separate entities.

Thus a change in the direction of the QRS vector carries with it a change of the T vector because of the fairly fixed spatial relationship that exists between them for each age group. Thus alteration of electrical position can be another source of T-wave changes. I have dealt with variations in rate and heart position, but there remain many metabolic and hæmodynamic factors which tend to change the spatial angle between the mean spatial QRS and the mean spatial T vectors. The list of factors tending to widen this angle can be reduced by repeating a doubtful tracing under basal conditions.

One other source of variation of T waves in the precordial leads of serial tracings is variation in electrode placement. As the chest can be divided into a zone of negativity and positivity for T waves in a given individual (Grant[5]), it follows in some cases that the line of the null plane or transitional pathway must lie close to V4 and V5, for example, as when the mean spatial T vector is leftward, superiorly and slightly anteriorly directed, and the slightest error of placement of the electrodes in serial tracings can produce an inverted T in such cases by the electrode lying on the negative side of the null plane. Lastly there is the phenomenon of isolated T negativity syndrome occurring in leads V3 and V4 in healthy young adult males mentioned by Dr. Seldon. This is thought to be due to a posteriorly directed T electrical force generated from a superficial region of the heart where the heart is nearest the chest wall.

I have mentioned the mechanism whereby I believe fear and increased sympathetic tone could exert T-wave changes in the normal heart. I would, moreover, hesitate to deduce normality or abnormality from the shape of the T wave, for, as Grant[6] has said, a "host of different conditions both normal and abnormal are associated with primary T vector abnormalities. In all of them the underlying biophysical defect is believed to be more or less the same, and therefore they cannot be differentiated from each other by the contour of the T waves alone."

Yours, etc.,

217 Macquarie Street,
Sydney,
August 6, 1958.

Z. FREEMAN.

[3] Rosen, I. L., and Gardberg, M. (1957*b*), *Am. Heart. J.*, 53: 727.

[4] Grant, R. P. (1953), *Circulation*, 7: 890.

[5] Grant, R. P. (1950), *Circulation*, 2: 676.

[6] Grant, R. P. (1957), "Clinical Electrocardiography, the Spatial Vector Approach", McGraw-Hill Book Company: 85.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED AUGUST 9, 1958.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	3	3(2)	4(2)	1	..	..	..	..	11
Amœbiasis	..	..	..	..	1(1)	..	..	..	1
Ancylostomiasis	..	..	..	..	..	..	8	..	8
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	1(1)	..	..	..	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	1	17(13)	..	..	..	..	21	1	40
Diphtheria	..	1(1)	3	..	..	..	..	..	4
Dysentery (Bacillary)	..	5(5)	1	1(1)	..	..	1	..	8
Encephalitis	..	1	1	..	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	2	..	..	..	..	..	..	2
Infective Hepatitis	40(11)	16(4)	6	5(3)	4(2)	..	3	1	81
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	1	..	..	..	..	..	..	1
Leptospirosis	..	..	1	..	..	..	..	..	1
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	2(1)	1	..	1	..	..	..	4
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	1	..	..	1(1)	..	..	..	2
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	25(15)	..	1	133(129)	5(5)	..	24	188
Salmonella Infection	..	..	..	1(1)	..	..	..	..	1
Scarlet Fever	19(5)	25(24)	4(1)	2(2)	2(1)	1	..	..	53
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1(1)	..	..	..	..	..	1
Trachoma	..	..	..	..	1(1)	..	1	..	2
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	32(22)	8(8)	19(10)	2(1)	11(7)	..	1	..	73
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

Post-Graduate Work.

REPATRIATION GENERAL HOSPITAL, CONCORD.

Medical and Surgical Seminars.

MEDICAL AND SURGICAL SEMINARS will be held at the Repatriation General Hospital, Concord, during the period from September 3, 1958, to August 3, 1959, at 5 p.m. on the first Wednesday of each month, in the first floor lecture room. The programme is as follows: September 3, 1958, "Carcinoma of Lip and Oral Cavity", Mr. N. Wyndham; October 1, 1958, "Continuing Hepatitis and Hepatic Coma", Dr. A. W. Morrow, Dr. S. Goulston; November 5, 1958, "Vascular Disease", Professor J. Loewenthal; December 3, 1958, "Blackouts", Dr. W. Bourke, Dr. J. Russell; January 7, 1959, "Complications of Gastrectomy", Mr. R. M. Dunn; February 4, 1959, "Gout", Dr. A. E. McGuinness; March 4, 1959, "Common Duct Stricture", Mr. H. Turnbull; April 1, 1959, "Alcoholic Heart Disease", Dr. R. Blackett; May 6, 1959, "Genito-Urinary Tuberculosis", Mr. J. Blackwood; June 3, 1959, "Reticulosis", Dr. T. Robertson, Dr. A. B. Conomy; July 1, 1959, "Dysphagia", Mr. F. Niesche; August 3, 1959, "Rounded Opacities in the Chest", Dr. M. Joseph, Dr. K. T. Helms.

Notes and News.

British Medical Association (Victorian Branch).

Section of Preventive Medicine.

The Section of Preventive Medicine of the British Medical Association (Victorian Branch) will hold its next meeting in the Medical Society Hall, 426 Albert Street, East Melbourne, on Thursday, September 11, 1958, at 4.30 p.m. Dr. Eric Mackay will speak on "The Prevention of Maternal Mortality".

Documenta Rheumatologica Prize.

It is announced that Dr. Michael Kelly, of Melbourne, has been awarded the Documenta Rheumatologica Prize for a monograph describing the treatment of rheumatoid arthritis by active joint mobilization. The prize, 2000 Swiss francs, is awarded by a joint committee representing the medical schools of the Geneva and Zurich Universities. The prize-winning monograph will be published in Basle by Geigy Pharmaceuticals, who donated the prize.

Cholera.

In a Press release issued by the World Health Organization it is stated that the cholera situation in Asia is the most serious in recent years. Cases and deaths are twice as numerous as last year in India and East Pakistan and an epidemic has struck Thailand for the first time for many years. Cholera has also been reported in Cambodia and Burma. An epidemic of cholera has broken out in Khatmandu, and, at the request of the Government of Nepal, the World Health Organization is supplying 25,000 doses of cholera vaccine to help to immunize the population. This is the first cholera epidemic reported in Nepal since the beginning of the century. The total number of cases and deaths recorded during the current year, up to July 31, in the countries most affected are as follows: India, 29,372 cases reported, 12,851 deaths; East Pakistan, 10,386 cases reported, 6644 deaths; Thailand, 8964 cases reported, 1190 deaths.

Grants for Research into Cancer.

Advice has been received from the Secretary, New South Wales State Cancer Council, to the effect that funds are available to the Council for further research into cancer. Applications are now being invited for grants in respect of (*a*) research fellowships, (*b*) travelling fellowships and (*c*) grants-in-aid.

The closing date for the lodgement of applications is October 17, 1958, and such applications must reach the Secretary, New South Wales State Cancer Council, Box 3944, G.P.O., Sydney, or 52 Bridge Street, Sydney, no later than that date. Application forms and further details may be obtained from the Secretary at the address mentioned (room 12, sixth floor).

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Logan, Geoffrey Gibson, M.B., B.S., 1956 (Univ. Sydney), 21 Freyberg Street, New Lambton, New South Wales.

Deaths.

THE following deaths have been announced:

MACARTNEY.—George William Cardew Macartney, on August 13, 1958, at Brisbane.

ATKINSON.—George Atkinson, on August 14, 1958, at St. Kilda, Victoria.

WARNE.—James Warne, on August 16, 1958, at East Melbourne.

Diary for the Month.

AUG. 30.—Queensland Branch, B.M.A.: Annual General Meeting.
SEPT. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
SEPT. 3.—Western Australian Branch, B.M.A.: Branch Council.
SEPT. 3.—Victorian Branch, B.M.A.: Clinical Meeting, Royal Children's Hospital.
SEPT. 5.—Queensland Branch, B.M.A.: General Meeting.
SEPT. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales. The Maitland Hospital.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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